

1880

Call 482

AP. 1880

Genus specimen Horn Silver (said)
to be obtained at Vulture Mine,
Arizona, U.S.A.

Collected by Dr. G. M. Allen, Prof. H. F. Osborn
and Dr. Wm. E. Barton.

P. tenuirostris = *Tenaculus setiferus*.
The skull of this species is very slender and elongated, with a long, narrow rostrum and a small brain case, characteristic of the genus *Tenaculus*.

Specimen No. 1216 + N 6th Specimen
Died Sep 7, 1883.

Coll. 482 (4)

1880-83

" vegetal Dish Rag = *Luffa acutangula*.

Mimosa Julibrissen = First noticed in
Garden of Agriculture Dept. at Washington.
Crows will eat it & formed some fine shade
trees at Morganton, N. C.

Notice hung up in Office of Hotel
at Morganton N. C.

" We keep a man in the back yard
to do all the cussing and jaining. Shall
we call him?" Dr. Koopoldt

The green and spotted hemipterous
insect taken from Horse radish and
cabbage in the garden of Hotel
at Morganton. Destroys coniferous plants

J. P. Harvey & Co

Choice Sugar cured
Breakfast Bacon, Balt. Md.

Vedas, Sacred books of the Brahmins -
Oldest religion of India, distinct
is or 5000 years ago. Buddhism
appeared about 500 years B. C.

AM.

N. S

FH

1' 2"

Depressor nerve in Man.

Kreidemann. Archiv. ges. Phys.
Mensch. u Thiere. Bonn 1868, I,
211-255.

In Rabbit = 2 roots from vagus-
one from vagus & the other from its Lsp.
The cervical branch descends neck
& joined by filament from 3d Cervical
ring of Sympathetic, & goes to
heart.

1880.

Summer excursion to mountains
of western North Carolina. June
22, 1880. Party: Dr. J. G. Porter, Jr.
Miller, Thos. Meehan, our wives, my
daughter & Sallie A. Nass. Left 11.45
Washington at Willard. Visit to Capitol,
Agric. Dep. (Dr. Vesey) & Sm. Institution
with new Museum building.

June 23 Left via Richmond, Danville
Salisbury to ~~Morgantown~~, N.C. and
arrived in afternoon of —

June 24. Put up at Hotel of Dr. Hapgood

In route from Salisbury observed:
country rolling, hilly, uneven covered
with a red clay soil, with little earth mould
based on granite rocks - Edges of road
adorned with *Lecoma radicans*, *Schizanthus*
uncinata *Passiflora incarnata*, *Gitonia*
naria, *Oxydendrum*, *Clingapin*.

June 25 Trip to Piedmont Springs 16 miles
from Morgantown - Table Mt & Transalpen-
mt. seen in distance. A sulphur and
a chalybeate spring at Piedmont.

Pinus strobus, *laevis*, *virginiana*.

Fucus vesiculosus, *obtusiloba*, *alba*, *tomentosa*,
Black jacke, *L. agnus-castus*, Thelomia,
Hlover. L. cornicaria, *Magnolia* *Fraseri*.
Abutilon maximum. Sweet Gum.
Anemone *Catesbeiana* (*Divaricata*) -

Country every where covered with
Hesperomeles trinervia supposed to be
immature wood sparce (doubtless).

June 26 Returned to Morganton.

Very warm, at a spring, few miles north
Pine mountain rises up a mass of Metamorphic
& metamorphized rocks, Calcareous &
Sandaceous. A ridge of coarse
material large blocks, some with a thin
porous layer made by latter.

Sunday June 27 Remain at Morganton. Went
to Presbyterian church.

Monday afternoon June 28 left Morganton
by rail to Young Station at base of Blue
Mts. Evening ride in open car to
summit of the Mountain & return
to town. Use of car through kindness of
Major J. W. Wilson of Morganton Pres. of
the Western N. C. Railroad.

Wed. June 29th. Ascend again to summit of Mt. Fremont all day. Great land slide near summit, called the 'mud cut' employment of Convicts to work on the road; hired by R.C. from State.

It is remarkable in the vegetation. Present on railroad very responsive with beautiful views of the mountains & valleys. In evening continue on railroad to end of latter & then take stage 5½ miles to Ashville & put up at Eagle Hotel.

Sororia, Passiflora &c. disappeared after leaving Maysville.

Wed. June 30. Nothing entered at Ashville.*

Sat. July 3d left Ashville by stage for Hvy Creek. Sat. afternoon pleasant drive on French Broad R. for 9 miles. to "Alexander's" on the river. On the cliffs visited Polypodium incanum Cheilanthes tenuis C. vestita.

Excellent oysters in a. Alexander's,
for breakfast had a fish "Red Horse"

* Altitude 2250 ft.

: which was excellent.

Sunday July 4 Continued our drive
by stage along valley of French Broad
R. and stopped at Marshall,
Marion Co. to dine. 'Revolving table'
'Catfish' excellent - a good dinner.
Afternoon continue the drive, over a
rough road through through a beautiful
country. The scenery of the French
Broad magnificent. In the route
we struck on the fence a 'Spoonbill
Goat' ~~Polyodus fuliginosus~~. Evening arrived
at 'Warm Springs' A beautiful
country, with large excellent hotel
etc. on French Broad R. Met Dr.
Cook. Saw the warm springs with
temperature of about 100° . Water
appeared nearly tasteless.

Mon. July 5. Left for Hot Creek
a delightful drive of 9 m. across
the hills. Obscure *Magnolia* *lancea*,
M. macrophylla, & *M. acuminata*
etc. were abundant. Also
Bignonia

Excellent dinner at Wolf Creek: - Turkey
Ham, 'Fresh water Drum' abundance
of vegetables. Polypodium again.

Afternoon leave by rail for Morristown
East Tennessee. On the way, near
town - Scraper, noticed on the right
bank of the French Broad R., some
thin limestone cliffs, on face of
which high above the water
could be seen the crushed entrances
of several caves! Soon stopped
at 'Cain Hotel' Morristown.

Most of the country passed over from
Salisbury N.C. consisted of a series
of Laurentian rocks, mostly gneiss
with schists & granite. First
limestone noticed at Warm Springs
& this continued along with
red clay colored shales to —.
Tuesday July 6. Special car attached
on passenger train to go to Johnson
City Tenn. & put up at 'City Hotel'

July 7th Wed. With two stages drive
to Evans Mt., 32 m. & in evening
arrive at Cloudland Hotel near
summit & at elevation of
6367 feet. Magnificent scenery
in the route. Top of mountain
comparatively bare of trees.

The forests mainly of Abies nigra
& Fr. Fraseri - Chief Shrub:

Rhododendron Catawbaeum
with abundant growth of Leiophyllum
bifolium. The mountain of
granites and gneisses of the
Laurientian series, with slopes
at base covered with limestone.

July 8th Evening in forests covered
with Hopmann. Excursion in vicinity

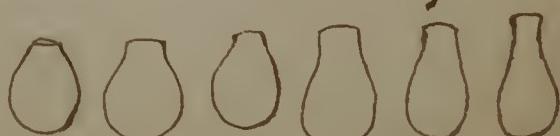
July 9th. Excursion.

A small white Gordius with
pustulate tail found in puddle
on road about 2 miles below
Cloudland Hotel. See appn.

July 10th 1880 Glendale Hotel
Raven Mt., N. C. 6367 feet
above sea level. Examination
of Sphagnum collected from
dipping rocks and vicinity of
springs where it grows in
company with a greater
profusion of Hygrocybe.

Especially abundant were
Nebula numata and *N.*
flabellatum. *Fimbrina acinus*
and small Erythrophloe of
compressed form and without
spines or hairs.

Nebula numata of varied form
oval to flask shape. Shell
marked by circular disks, uniform
or minute or of larger disks
and minute ones in the intervals
nearly invisible, but in a
smaller number clearly
outlined.



All measurements except where specially

given were from the $\frac{1}{5}$ objective,
and from the broader side of the
specimens as they are usually seen.

Nebela munita:

1. Oval, living. 13-10 month 3
2. do. 14, 10 month 2 $\frac{1}{2}$.
3. Oval with short neck; living;
13-10-2. Nucleus 2. Discoid
marks of shell, minute, circular,
uniform, about $\frac{1}{2}$.
4. Oval, with short neck; shell of
circular disks, of varied size, the
larger are fewer about 1 with
smaller ones occupying intervals. The
markings distinct. 13-10-3.
5. Oval with short neck 16-13-4
neck long. Diska of shell distinct
a few large, circular 2 diameter
some in a ball 8 diameter.

Nebela flabellatum:

Nearly circular and with a short
neck, sometimes obsolete. Shell
mostly of minute circular disks,

uniform in size or variable, occasionally
of elliptical disks.

1. Nearly circular with short neck.

13-13-3.

2. do 12-12-neck long, mouth 3.

3. do 12-13-neck 1 - mouth 3 - Shell
with minute elliptical disks.

Nebria numata. Flat shaped, of
minute circular disks 14-8-3.

Fimena acinus. Small and usually
without distinct markings. Mostly
empty shells & very numerous.
Of variable shape and size and
degree of narrowing opposite the
mouth.

No. 1. 5 by 3 in the broader view

2. 8-5 mouth 2 oval 

3. 8-5 do oval 

4. 9-5

5. 9-1 with minute circular divs.

6. 10-7 



7. 10-5

Euglypha. Compressed, spineless,
Apparently with 10 teeth to the
mouth, much thicker than the
rest of the shell.

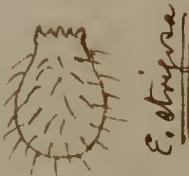
1. 7-4-2 Shell 2 thick.

2. 7-4-2

3. 8-4-2 Abundant.

Euglypha. Compressed, 10 points
to mouth - 18-10-3½ with short
lateral hairs or spines 2 long.
Slippery; nucleus 3. Scarce

Euglypha. Compressed, 10 pts to
mouth, scales more or less distinct
all over surface with minute
hairs except at or near the
mouth. Teeth thickened

1. 12-7-3 Hairs about 1 

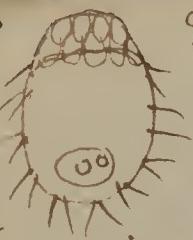
2. 12-8-4 Scales distinct; hairs
scarcely 1. More frequent than
the one with only lateral hairs.

Euglypha leonina Frequent
; varied size and depth of color.

1. dark brown 8-7-2½

2. pale brown 9-8-5.

Placocista spinosa



Euglypha spinosa Meas. with $\frac{1}{10}$

Living sp^m - only one observed.

28-18-mmth ♀. Lateral spines
hair like, short, single & in pairs
3 long. Nucleus transversely oval
7 by 6 with two nucleoli 1 diam.



Difflugia contracta - only one seen
Shell of indistinctly defined granules
of sand - in lower view 10 by 8 - of
a yellowish hue. Probably a
Trinema? (1/5)



Sunday July 11th. Ex. of same *Sphagnum*
Nehela numata, frequent, from
oval or ovoid to flask like. (1/5)

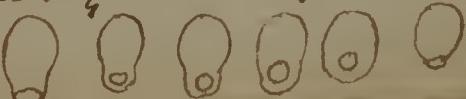
No 1 15-12-3 1/2



" 2 14-9-2



Trinema acinus Frequent & varied
form = oval - pair shape - of varied degrees
of elongation. In lower view smooth
sometimes appears terminal, subterminal
& others considerably removed from the
ant. extremity



4 - 2 $\frac{1}{2}$ - 1 oval

6 - 4 - 2 pyriform

7 - 5 - 2 

7 $\frac{1}{2}$ - 6 - 2 - 

Lat view of one 12 - 6 - 2. with (15)

Euglypha. Compressed, spineless,
small form frequent.

One with 6 teeth? 7 - 4 - 1 $\frac{1}{2}$

one with 15 teeth? 17 - 12 - 6

one with 10 teeth? 8 - 4 - 2 nucleus 1 $\frac{1}{2}$

Euglypha, Compressed oval, with
about twelve teeth? With sixteen
short fusiform spines attached to
the lateral border. 17 - 12 - 4
Spines 1 $\frac{1}{4}$. Nucleus uniformly and
distinctly granular 3 diam (15)
Only one specimen observed. = E. ciliata.

Euglypha leunea? occasional form
colorless to dark brown

8 - 6 - 2 - Saccate with nucleus 2

13 - 12 - 4 nearly colorless, no neck (15)

* Astellina seminulum

Difflugia contracta, larval caps form
with shell of sand & yellowish dirt
18 by 17 - opposite mouth 13. 

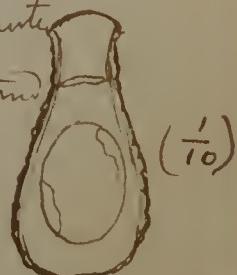
The forests carpeted with three species
of Hypnum as follow: H. splendens
H. cristatum & H. triquetrum
among which was conspicuous the
Oryalis acetosella in flower.

The forests of Ailis Fraseri and A.
nigra with Sorbus americana.
and abundant undergrowth of
Rhododendron maximum & R.
Cataphalaense.

A tuft of Hypnum splendens
moistened and squeezed exhibited
the following:

Nebela numata? not impregnate
of dark lily form, shell of minute
lenticular dikes, with concavities without
and of uniform size. 23 - 16 - 6
Second mass over, clusters
17 by 10 nucleus not seen.

Dikes of shell about 1 mm ($\frac{1}{40}$ in).



Burthes 22-13-6 concavity of mouth 2

Several others of same form
and character. Sarcide in
all encysted in oral masses



of various size. Meas. with $\frac{1}{10}$ in
A third measured with $\frac{1}{5} = 10-6-3$.

Surfaces appear to be lissed thus:

Hyalosphaeria, a single well
marked specimen observed, with
sarcide encysted on a ball
with much food including bright
yellow oil-like globules;
shell pale yellowish brown,
compressed, nearly circular
with a short distinct neck. *H. tincta*



23-24-8 with $(\frac{1}{10})$ neck $1\frac{1}{2}$ long
Sarcide ~~are~~ 16 diam. An
peculum of dit. Shell
stomachless, but two pores
observed just above position of
the neck. Closely allied to *H.*
platycistis.

Nebela flabellulum, the most
fragile form of Nebela. Shell
of round dinters, variable in degree
of uniformity (1/5)

14-15-3 $\frac{1}{2}$ neck 1 14-15-3 neck 1
13-14-3 neck 1 13-14-3 neck 1
11-12-2 $\frac{1}{2}$ neck 1.

Amoeba generally encysted in a
ball of shell covered with an opercle.

Nebela murata of oval form.

Several observed. Shell of
minute round dinters.

16-13-4-neck 1 long (1/3)

Aesulina seminulum or
Euglypha brunneum occasional &
varied size & hue from colorless to
dark brown. 9-8-3 = 7-6-2 (1/5)

Zinema acinus. Fragment. (1/5)

5-4

6-5

6-5

7-5 nucleus of amoeba 1

6-6

Associated with the Rhizoids of the
Hypnum there were many
sleeping, *Reticularia vulgaris*. From
colorless to a red hue. Many
starch grains and pollen grains
of Alies - but no diatoms.

Three fishes caught by Mr. Miller,
with the Brook trout, & caught in
some manner. Belong to Cyprinidae
probably a species of *Hypseleotris*.
Two preserved in alcohol & the
third dryed & mounted.
Fish with thin longitudinal column
colored lines on sides, and bright
yellow color on the cheeks.
Caught in a tributary of Doe R.,
a tributary of the Catawba on
the north slope of Roan Mt., N.C.

A Hesperornis - which infests the
lava, caught and preserved.

July 12th Monday. A tuft of *Hippomnus splendens* moistened and squeezed yielded the following.

Nebula flabellulum. Frequent
the ball mostly broader than long &
with a short neck, sometimes nearly
or quite obulate; colorless or pale
yellowish green, composed of circular
conules of variable size & proportion.

14-15-4 neck & long (15)

11-12-3 " do.

12½ - 13½ neck ½ mouth 3 with
speculum of yellowish dirt. Same
ball with central mass

1 yellow food balls, some
" oil like, Same 8.



Nebula murrata. Occasional flask
like forms of circular conules (15)
11-7-3

Euglypha bromae* moderately frequent
From colorless to brown, oval to nearly
circular. 13-12-4 8-7-2 (15)

* = Assulinus seminulum.

Difflugia ____? *Hemimphenium*, of fine sand and dirt - mouth circular. Yellowish in color. 10 diam. mouth 3 ① (15)
Thick. . . = *D. globulosa*.

Difflugia *; *Hemimphenium* with trilobed mouth ② ③ Brown, rough; shell incorporated with gelatin. Lava dirt 22 diam 15 high. mouth 8. (15)
* = *D. aeca*.

④ Minute, clusters, oval $4\frac{1}{2}$ - $3\frac{1}{2}$ -1 nucleus $1\frac{1}{4}$ - Compound structures shell resembles *Sphenodermis* but did not mount the wedge-like nests.

With the *Hypnum* were many *Reticularia vulgaris* in active condition. Ova of the same. Others quiescent no ciliate infusoria observed. Spores of lichens & fungi - many. A *Zandvliade* and egg not impregnate. Vegetable hairs no diatoms or desmids. A few young *Anguillulae*.

Examination of water squeezed from Sphagnum.

No Testifers! Ranch ciliate infusoria
No Landjackets, A few Annelidae.
Diatoms a number of species &
frequent. Desmids a few species
but not abundant. Starch grains
Pollen grains of Abies. Spores of
fungi & lichens - &c.

Nebula numerata - Abundant and
of great variety of form, size, &
amount of cancellated structure
of shell. Pyriform & flask like
varieties most abundant.

Smaller forms most abundant:

 13 $\frac{1}{2}$ -9-3 shell diameter 1 $\frac{1}{2}$
cancellate with large & numerous
circular disks & about 12 m.

There was an absence of organic material
and microscopical, or fossil tissue in
this specimen, which was a clean
empty shell.

Small flask like forms, with
circular cancellated shell in



which cancelli differ greatly in proportion
to size of shell. One 14-17-3 with
width 3. Length cancelli on body 1 to $\frac{1}{4}$
or nearly 2!

More oval forms of variable
proportions & with neck variable
in length width & with mouth
variable in proportion.

Giant forms occasional.



One newly filled with sarcocolla
containing multitude of yellowish
globules from 1 to 2 diam.

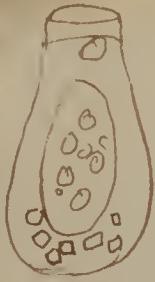
Shell 30-15-7 with $(\frac{1}{5})$

An empty shell with faint brownish hue.
Porous structure finely granular with circular
cancelli appearing only on the body of the
shell. This was the usual structure in
the large forms. One 35-20-8-($\frac{1}{5}$)

32-17-8 Structure as above

Sarcocolla contracted to form a
thin oval granular colored ball
with scattered yellow & brown food
globules.

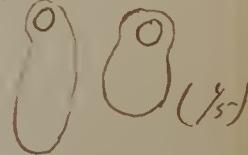




35-20-8 - An operculum. Shows
an oval mass 24-16 white granular
with yellow & brown food globules.

Shell with minute circular concellate
structure, mingled at borders with some
square plates. (15)

Fimena acinus abundant
& of various form, size, & appearance
Many empty shells. (15)
One 8-5-2 with distinct nucleus &
one 7-5-2 containing 6 spines from 1 to 1½
Two in same field appeared thus (15)
12-5-2 and 9½-6-2 (15)



Euglypha brachiatata 5 or 6. with
4 mouth vent inwardly; border appen-
dix and like 17-6½ - is between
points of mouth. Only one spine 7 long
Euglypha small spineless forms
numerous.



Euglypha - 16 want to form one animal.

Euglypha brownii. = Assulinia seminulum
Brown, w necks, circular 12-12-4 (15)

Frequent varying from oval to nearly circular, with & without a short neck & from colorless to pale or dark brown. One 14-12-4 pale brown 14-12-4 dark brown with darker circle at the neck.

12-8-3 pale brown, oval, w dark circle at neck.

Geloperca? Occasional dead shells of a juplift brown line, some with & others without dirt or sand at funnels. 15-13-7; 18-15-6

Diplopia pyriformis. occasional; shell of dirt & sand. One 14-8-neck & mouth 4.

D. constricta rare - of fine sand & dirt 13-8-4 under view. (15)

D. hemispherical, brownish dirt & sand; with lirate mouth (O) 22 broad 1. high. Rare. = D. arena.

C. indopappis* ~~decolor~~ Pale brown chitin on sand (O) especially along line of the oral spines 16-14 mouth 4. *

* Bentropygis aculeata.

A round with more oval
culture beneath 20-16.



Smooth wall with dimpled border 5 by 4.

Principal plants observed on the
top of Mount Rennell, in vicinity of the
Islandland Hotel.

The meadows covered with grass
mainly *Dactylis glomerata* & *Agrostis capillaris*.
Other pastures mainly covered with
Rhododendron Catawbiense, at
base of which are on rocks abundance
of *Lithophragma heterophyllum*. In many
places great clumps of *Polytrichum*
Other plants *Oldenlandia serpyllifolia*
Oldenlandia prostrata, *Berberis officinalis*
In the meadows & at edges of woods
abundance of *Beratrum viride* in
more vigorous condition & now in flower.
The neighboring forests mainly of
Abies Fraseri = Silver or Balsam Fir
& *A. nigra* or Black Spruce, with
some *Sorbus Americana* or Mt. Ash.

The floor of the forest with scattered
rocks of Slates & of the chief shrubs
Rhododendron maximum & *R.*
Catawbiense. Ground covered
with sprays, carpet of *Hypnum*
splendens, *H. triquetrum* & ~~*H. revolutum*~~
H. crista-castrense,
with profusion of *Oxalis violacea*
in flower. Abundant *Smilacina*
lilifolia with *Clintonia borealis*,
& frequently, fern = *Aspidium*
spinulosum. On the cliffs grew
Saxifraga leucanthemifolia &
in cliffs the *S. Canescens*; also
Gaultheria procumbens, & *Agristis*
repens. *Thrix*

Lower on the slopes grew *Azalea*
catesbeiana, *Menziesia* &c.

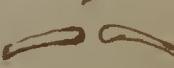
Slopes of broken rocks, prostrate
trees in all stages of decomposition
carpeted with *Hypnum*. On
some of the wet cliffs beautiful
green & red patches of *Sphagnum*
with the *Hypnum*.

Hippomene splendens ~~sp.~~

Hippomene crista-castrense 

Hippomene trigonete 

July, Tuesday 13th. Exam. of water
passed from Hippomene:

Nebula flabellulum. The most
prettiest form with faintly yellowish
or colorless shell broader than
long, nearly circular in outline
normally, with a short neck so
rim to the mouth. Shell minutely
canaliculate sometimes distinctly,
sometimes obscurely & occasion-
ally so indistinct as to appear
almost or entirely structureless.
A few often distinguish-
able on each side just
above the neck, the borders of
which distinctly thickened  

14 - 15 - 4

14 - 15 - 4

14 - 16 - 4

14 - 15 - 4 with

earlobe emarginated, stellular 10 diam.
mouth enclosed by operculum.

13-13-4

13-14-4 neck

nearly oblate. Neck usually $\frac{3}{4}$ to 1.

11-11-3. Saccula with nucleus 2

11-12-3 do do "

11-11 $\frac{1}{2}$ -3 14-15-4.

14-14-4 neck 1 long

16-16-5 neck 1 long

shell yellowish, obscurely
purple. Clad with operculum

Saccula everted, clusters but
with luminous food balls - 13 diam

14-13-3

Passing into *N. nannata*

which is much less frequent by

oral forms thus 15-14-3

neck 1 long. Shell minutely
coniculate.

Another 14-13-3

" 12-11-3

• 13-13-4

Star shaped forms

12-7-3 11-6-2 $\frac{3}{4}$

11-7-2 $\frac{3}{4}$



The flask forms consolidated with cancelli of very variable proportions, some of smallish shells with proportionately large cancelli & large shells with very minute ones, often almost punctate only.

Occasional shells apparently of *Noelopera*, always purplish brown and with variable proportion of incorporated sand = *N. petricola*



15-13-7 16-13-6.

Difflugia contracta - rare. Shell of yellowish dirt & sand.



12-12-

Difflugia ○ = *D. globulosa*. rare with circular mouth, hemispherical shell 10 broad mouth 4. And smaller associates abundance of *Reticularia vulgaris*, a few tardigrades, a few sharply annulate *Rugulinae*.

Euglypha bonneae 12, 12, 4 nearly circular. Brown one 6-5-1½.

Small spinelss Euglypha

me 10-8-2½

Zinema acinus - in variety of form.
Kewante Euglypha 10-7-2.

In Sphagnum water:

Achela numata 14-13-4 neck 1

shell of minute elliptical
discs.

Spinelss Euglypha with 8 to 10 teeth?

8-5-2

With six teeth 9-4-2 9-5-2.

Euglypha leucostoma brown 7-6-2
Streptomyces seminulum

Euglypha - cistata? without
spines - for teeth 9-2-1½

Zinema. Sometimes with minutely
but obscurely punctate shell.

12-5-2

8½-6-2½



gymnospermae
Phytolacca acinosa
Musa paradisiaca
Musa acuminata
Musa balbisii
Musa velutina
Musa rotundifolia
Musa longistylis
Musa basjoo
Musa sikkimensis
Musa tiliifolia
Musa textilis
Musa rufa
Musa ornata
Musa velutina
Musa rotundifolia
Musa longistylis
Musa basjoo
Musa sikkimensis
Musa tiliifolia
Musa textilis
Musa rufa
Musa ornata
Hemidiodia villosa

Caryideanaceae C. 1000 ft.

C.

Leptolepidium heterophyllum

Solidago

Thlaspi

Thlaspi repandum
Gymnocarpium drymocladum
Ceratodon

Thlaspi rotundifolium

Hedysarum palmatum

Hedysarum pinnatifidum

Thlaspi rotundifolium

Thlaspi rotundifolium

Alnus . growing with the
Rhododendrons in some places.

selago.

- Rumex acetosella R. crispus.
Sisyrinchium Bermudianum.
Cacalia reniformis
Thalictrum
Tenecio aurea var.
Cerastium viscosum
Pedicularis
Erythronium maculatum
Hypericum p. .
Viola cucutata. v.
Acer spicatum
Lower: Fagus.
Betula
Lower: White Oak; Chestnut.
Liriodendron
Aristolochia siphon.

Snow Bird, *Juncos hyemalis* frequent
nest built on ground; spotted white eggs.

Striated Buzzard, Blue Jay, Wren.

Zeliosophorus carolinensis

Helix

Large Black Ant under Stones.

No White ants observed.

Hesperomys common

Noticed a Shrew in the forest
July, Wed. 14, left Cloudland &
Roan Mt. for the "Forge" at foot
of Roan Mt. 7 m. below, and staid the
night. Primitive Forge. Reduction of
the Magnetite of the vicinity - Crushed
to powder & mingled with charcoal, then
fused into a party mass in a common
forge; then taken on end of a bar and
submitted to the tilt hammer and
reduced to a bloom. Obtain about $\frac{2}{3}$
the iron of the ore or less. Blast
produced by descent of a stream of
water through a wooden tube.
Vegetation on the vicinity of the Forge very
like our own in similar positions.

July 15th Thursday. Stage to Johnson City
Hunting of *A. parvulum* on limestone near
the latter place. Several caves in the
same in the vicinity. Parked at
Hotel of Mr Hoss opposite the
station at Johnson City.

July 16th Friday Left the early in
morning via Bristol for Lynchburg
and stopped at Arlington Hotel.

July 17. Tuesday. Traveled down Lynch. & Danville

Railroad in company with Mr Doorn
to visit iron mine - Magnetite ore
laid very irregular, in mica schist.
Said to be well as far as laid & hence
the name of Hammonia.

July 19th Monday. I. N. D. left via rail to
Charlottesville & then by Chesapeake & Ohio
via Staunton to White Sulphur Springs
Green Brier Co., Va. At Staunton met
by stage Ted. Harkness Ed. of "The Virginian"
who accompanied us to Alleghany. In route
passed over in one section Laurentian or
Archean rocks, Silurian limestone (Tanton)
Hoelkerberg limestone, Crystalline, mainly con-

sisting of beds of limnite; followed by immense development of Marcellus shales (Devonian). Beautiful scenery, number of tunnels on railway, of which tiny, eat length. Pan trains of cars loaded with bituminous coal and cannel coal, from the coal measures. Further west. The Marcellus shales highly bituminous; Maj. H. reported 20 pr ct bitumen. The local drift containing boulders of the siltian sandstones.

Arrive at White Sulphur Springs 10.30 A.M. Hotel beautifully situated surrounded by the mountains. Tuesday at White Sulphur Springs. Dr. Porter & Mr. Meekan leave for Hawk's Nest.

July 21st, wed. Leave W. Sulphur Springs at noon for Huntington. Part way pass through valley of New River and Kanawha, through the Coal Measures. Magnificent & wild scenery, especially from Hawk's nest to Kanawha Falls. High cliffs of sandstone in horizontal beds. large blocks of which strewn in

Equivelents of the Palaeozoic Formations of Va.

<u>Up. Camb.</u>	Up. Warren Groups	XVI	Screve
	Up. Coal Groups	XV	"
	Low. Warren "	XIV	"
	Low. Coal "	XIII	"
	Great Conglomerate	XII	"
<u>Mid. Camb.</u>	Green River Shales	XI	Mulford Shales
	Green River limestone	XI	" Limest.
<u>L.</u>	Montgomery Mts &	X	vespertine.
<u>C.</u>	Coal Measures		
<u>Devonian</u>	Catskill	IX	Ponent.
	Chemung		2} Vargent.
	Portage		3} Cadent.
	Genesee	VIII	
	Hamilton		
	Marcellus		
<u>Silurian</u>	Oristano	VII	Meridian
	Low. Helderberg	VI	Premeridian
	Watina		3} Scalent
	Niagara	V	Surgent
	Clinton		
	Medina	IV	Lerout
<u>Up. Cambrian</u>	Hudson River	III	Matinal.
	Ithica		
	Trenton		
<u>Mid. & T. Camb.</u>	Chazy	II	Survival
<u>Can. Camb.</u>	Levis		
	Calcareous		
	Potsdam	I	Friatal

in a column

confusion on the river shores and in its bed. Much Middleton shrub growing on Brick Elm, &c. on the river banks, Arrive at Huntington about 9 P. M., situated on the Ohio R.

July 22 Thursday leave latter 10 A. M. for Hawks Nest, about 100 m east & went up to a little tributary there. In afternoon - a vine along the cliff & over water. *Tripsacum dactyloides*, *Linaria latifolia*, *Panicum virginianum*, *Hedysarum fuscatus*, *Passiflora quadrangularis*, *Cornus racemosa*, *Chionanthus* in fruit, etc.

July 23 Friday leave for Staunton & arrive at 1 after midnight.

July 24 Saturday. Staunton 6 mi. N. of town, 11 A. M. Leave for New Market on Balt. & Ohio R., Pick valley of the Shenandoah R. Village of New Market 2 m. from the R. R. station. Afternoon take stage 14 m. to village of Luray.

July 25 Sunday - Luray.

July 26 Monday Visit to Luray Cave
about mile distant from the village.
Descent at the entrance. Cave following
mainly the direction of the nearly
horizontal strata of Silurian
limestone. Cave extensive and
remarkable for the beauty, variety,
number & size of its stalactical
formations. Animals observed: a
small spider numerous, also egg nests
of some; a minute white nemop-
toma insect - resembling a Parcisia or
an Astropis; these were frequent. Also
saw many specimens of a calcified
Julus. A large rat is said to have been
observed, probably the Neotoma floridana.
No water in the cave, i.e. in any quantity. No
crickets, cray fish, or fish!

Afternoon. leave Luray & return to New
Market.

July 27 Tuesd. Visit New Market Caves
 $1\frac{1}{2}$ m. from the village. The Caves are
for most part a vertical fissure in

the silurian limestone. It is not so vast, nor the compartments so capacious as in Lurye cave, nor are the stalactital formations so varied and numerous. It is a dry cave.

Same day leave New Market, for Harper's Ferry, and thence to "Relay House", between Washington & Baltimore
July 28th Wednesday return home arriving about 2 o'clock.

Cost of the trip, of myself, wife, & child about \$300. Fare passes were kindly furnished for the whole party by application to Mr. Isaac Hinchley Pres. of the Phil. M. & Balt. R. R. The travel comprised nearly 18 hundred miles of which nearly 200 were by stage. The passes furnished were as follow:
Phila to Balt. & return by P. W. & B. R. Co.
Balt. to Quantico & do by Penna. R. Co.
Quantico to Richmond do by Rich. Fred. & Potom. R. Co.
Richmond to Salisbury do by Rich. & Danville R. Co.
Salisbury to Asherville by West N. Car. R. Co.
Holly Creek to Bristol by East Ten. Va. & Georgia R. Co.

From Bristol to Lynchburg at $\frac{2}{3}$ rate = \$6.15
Lynchburg to Charlottesville & return, by Wash.
City, Va. Midland & Great Southern R. Co.
Charlottesville to Humpback & return
to Staunton, by Ches. & Ohio R. Co.
Staunton to Balt. & return, by Balt & Ohio R.

At New Market met with Drs. Heeckel, uncle
and nephew, both graduates of the University
A son of the former met at Staunton.

Trip to Delaware Water Gap Cave.

Aug. 3 Afternoon th Easter to Dr. Porter's
Aug. 4 Took 10.45 Rail to Stroudsburg
arriving about 1 and met Mr
J. Dunkin Parrot. Took quarters at
'Bennett House'. After dinner went to
home of Mr. Parrot & examined collection
of bones &c. from the 'Cave'.

Numerous fragments of shafts of long
bones of many animals, including birds.
Numerous teeth, jaws, & parts of skulls
as follows:

Deer, Elk,
Wolf, Fox, Skunk, Weasel, Wildcat.
Marmot, Porcupine, Bear or, Squirrel
Arvicola, Raccoon,

Vertebrae of Snakes, Carapace of Turtles.
Portions of upper and lower jaws, with
deciduous & permanent teeth of a
Dicotyles nasutus.
Incisor and molar isolated of a
Castoroides ohioensis.

Several bone awls, and a
stone lance-like implement
of red slate.

Athies and a broad Corus tornatus?

Afterwards visited the 'cave' a
few miles from Stroudsburg and
Del. Gap. There met Mr. Knipe
& Brodhead.

Opening of the cave in the
face of a limestone cliff, forming

The arch way of a beautiful anticlinal axis. The cave was nearly filled with a clay deposit, evidently the sediment of a stream. Clay reaches the within a few feet of the roof. On the clay a stratum of about one foot of dark brown friable mud. The bones, implements &c. found in this mud, which in many places is more or less separated by a thin stalagmitic floor from the clay. Nothing found in the clay. Near entrance of cave some breccia adherent to roof containing bones, seeds, & charcoal. Bone explored between 1 & 200 feet by removal of the clay, making a passage, (not however reaching the true rock floor) in which man may walk erect.

Unio complanatus. H. C. L.

Evening with Mr. Parrot &c.

Aug. 5. Thurs. Drive through neighboring country in comp. with Mr. P. & Dr. Porter. Found insect nests of eggs on slate rocks of Bekons Creek, & parasitic beetle of the same. Dined at Del. Water Gap. with Mr. Brodhead, Mr Parrot, Mr Simpe & Parrot. Evening returned home.

The Cone shell on exam. appears to be Coneus tornatus Brod. = C. interruptus Gray found at Guatemala & other parts of Central America. Spm less than inch long. with spine broken off. & axis broken through so as to allow of being strong. Is it a true Indian relic? Next Coast shell.

Aug. 22. Remains of Mammals collected to date in the Collections.

Lynx. *Felis canadensis*

Wolf. *Canis lupus* - *C. occidentalis*

Gray Fox. *Vulpes virginianus*.

Skunk. *Mephitis mephitica*.

Weasel. *Putorius ermineus*.

Raccoon. *Procyon lotor*.

Elk. *Cervus canadensis*.

Deer. *Cervus virginianus*.

Deer. Teeth sc. Intermediate in size
to the former two animals. *

Bison. *Bison americanus*

Horse. A first upper milk molar
of a new born animal.

Dicosteles nasutus. Extinct. Portions
of upper & lower jaws with teeth,
of a young animal.

Gastornis olivensis. Incisor and molar

Gray Squirrel. *Sciurus carolinensis*.

Ground do *Tamias striatus*.

Woodchuck. *Arctomys monax*.

Beaver. *Castor fiber* = *C. canadensis*.

Wood rat. *Nectomys floridana* =
N. magister, Baird.

White footed Mouse. *Hesperomys leucopus*.

Meadow Mouse. *Aricola riparius*.

Porcupine. *Erethizon dorsatum*.

Gray Rabbit. *Lepus sylvaticus*.

Musk rat. *Fiber zibethicus*.

Mole. *Scalops aquatinus*.

* Woodland Caribou. *Rangifer caribou*.

Dusky Bat *Vesperilio fuscus*. *V. carolinensis*
Little Brown Bat. *V. subulatus*.

Bear

On the Bone Caves of Penn. S. F. Baird
Proc. Am. Ac. Adv. of Science II. 1849,
352, Boston 1850.

Remains of Durham Cave

Moose

Deer

Bison

Beaver

Porcupine

Woodchuck

Gray Squirrel

Muskrat

Rabbit

Neotoma magister

Gray Fox

Skunk

Raccoon

Bl. Bear

Box tortoise

Snapper

Sep. 2/80 Letter received from S. A. Forbes of Illinois State Laboratory of Natural History Normal Illinois, stating that "the young of some Catosomidae (Hypentelium, Myxostoma &c) have the intestines packed with tests of Diffugia & Stocella, especially the former. Later sent two slides.

Slide with food from intestine of Myxostoma macrolepidotum from Mackinaw Creek contained following: Most numerous form: Diffugia globulosa. Shell of rather coarse sand with larger grains at border of mouth.



No. 1, 2. = 0.18 long 0.162 broad; ab truncated or oral end 0.102 inde. Oval with oral pole truncate.

No 3. = 0.18 long 0.156 broad; at oral end 0.102.

No 4. = 0.156 long 0.15 broad; truncated oral end 0.072

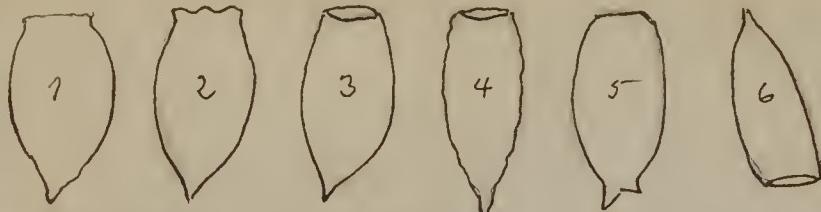
No 5 = 0.174 " 0.156 " ; " " " 0.09

No 6 = 0.198 " 0.168 " ; " " " 0.096

No 7 = 0.198 " 0.21 " ; " " " 0.108

Second form -

Diffugia acuminata, mostly slightly symmetrical, some with a slight neck, straight or slightly evaginated; one seen with two points to summit usually of minute stones & comparatively smooth. One oblique form No 6 approaching D. contracta.



No 1 0.18 mm long, 0.108 broad, 0.06 at oral end

No 2 with slightly evaginated necks undulant at border

0.18 mm long 0.108 broad, 0.06 - at oral end

No 3. 0.18 long 0.114 broad 0.048 at oral end. 1, 2, 3, all offish stones.

No 4 of coarse stones 0.198 long 0.102 broad, 0.06 at mouth

No 5 0.18 long 0.114 broad, 0.06 at oral end.

No 6. Stands 0.162 high 0.09 broad, 0.06 at mouth.

Fossils of *Erimyzzon suetta*. Apparently
the superficial sediment of the water.
contains entomorpha, rotifera, diatomaceous
debris, diatoms &c with following Rhizopods -
Arenella vulgaris. var. with pitted shell

A. disciculus. 0.18 wide, mouth 0.036, height?
" 0.15 " " 0.054, " ?

Difflugia lobostoma, with trilobed mouth most
common form. 0.09 long 0.078 broad mouth 0.03

Several of same size, others slightly smaller.

D. globulosa 0.15 long, 0.138 broad, oral end 0.078.

D. pyriformis 0.42 long 0.21 broad, at mouth 0.09.

An Arenella-like test



0.105 broad, mouth 0.03 broad, height? Fossils of *Arenella*
disciculus but no structures of *Arenella* detected.

Shell of nearly colorless or pale yellowish chitin,
incorporated with minute darkly outlined granules
isolated or scattered and in groups of 1 to 5 often in
straight rows $\circ \infty \infty \infty \infty \infty$ & $\infty \infty \infty$ a
row of five measured 0.009 long. Only one specimen
in slide of food of *Mystostoma macrolepidotum*.

May 22, 1881 Human blood examined.
Red corpuscles ranged from 2 to 3 div diam
with $\frac{1}{10}$ to $\frac{1}{5}$ euglobule center agar. Acropuricle
of 3 div. was 1 div. thick.

The corpuscles mostly 2 and 3 division,
a greater proportion of the former, and
with comparatively few of intermediate
size. Generally when different were a
little more than 2 or full 2 or a little
more or less than 3 generally full 3.

~~some~~ rarely $2\frac{1}{2}$ or threealents. Remarkable
absence of white corpuscles. From a young
woman, a patient with Elephantiasis of
the lower limb - Case of Dr. J. S. Norton

Light colored spider frequent under dried
seaweed above high tide on beach at Cape
May &c. Lycosa littoralis, probably a
variety of L. riparia.

To ΠΓΩΤΙΩΤΟΥ, the first of all, Protista
or primordial
movings simple = - - - - Monera
Cytodes, or Cellulae = Plasma masses
without nucleus.

Gymnocytopodes or Cytodes nudae =
naked cytopodes, or those without membrane.

Lepocytodes or Cytodes membranaceae =
cytopodes with inclosing membrane.

Cyta, or Cellulae = Cells, or plasma
masses with nucleus.

Gymnocyta or Cytæ nudæ =
naked cells, or nucleated cells without
inclosing membrane.

Lepocyta or Cytæ membranaceæ
= Cells with membrane & nucleus.

After Haeckel.

Sept 1. 1881

Weighed a Mouse = - - - 193 gms.

Brain = - - - - - 5½ do.

Proportion 1 to 35.

July 1881 Trip to spend summer. At
F. Gousch's Sunset Home, South Mountain
about 2 m. from Nemesisville, Berks Co. Pa.
The mountain ridge in vicinity consisting
of gneiss, granite & syenite,
with several trap dykes.

Gneiss - of quartz and feldspar with almost
no mica or other constituent, very compact
and apparently stratified with no
continuation or folding; often obscurely
stratified.

Granites variegated mostly of quartz & reddish
orthoclase; others of them with a little
mica.

Syenite - black mostly of hornblende, with
the feldspar & quartz in fine grain.

Basaltic traps - A dyke through the
gneiss on the hill above Gousch's home;
another in close proximity to Walter's
Sanitarium, on the opposite ridge.

The high summit of the South Mt.
about 2 miles or less from Gousch's & about
4 or 500 ft higher than latter apparently

a quartzite rock of the Potsdam formation.
The core to the summit above the ridge
appeared to be all composed of the
latter. At its base there appeared to
be a thick vein of milky granite.

Flank of South Mountain, east
side about 1 mile below Gruch's
& other hotels, of Potsdam sandstone
of varied constitution, but mostly
quartzite, white or grayish and
remarkably jointed generally in two
directions obliquely parallel to the
stratification. In the little valley
below Deppen & Wenzel's the Potsdam
consisted of a very compact jointed
granite, and appeared to contain
a vein of bright yellow & red
granular looking crystalline granite
passing into jasper, yellow &
red, many chips of which strewed
in the forest, looked like remnants
of stone implements.

Near Sheridan Station, on Mr. Ellis'

place the Potomac contained a
friable light red stratum, and
near by, found a block of the
sandstone with *Scolithus linearis*.
the only specimen of the fossil
meted.

Mature male murre 356gs brain 6 $\frac{1}{2}$ gs
Small do do 193" " 5 $\frac{1}{2}$ "

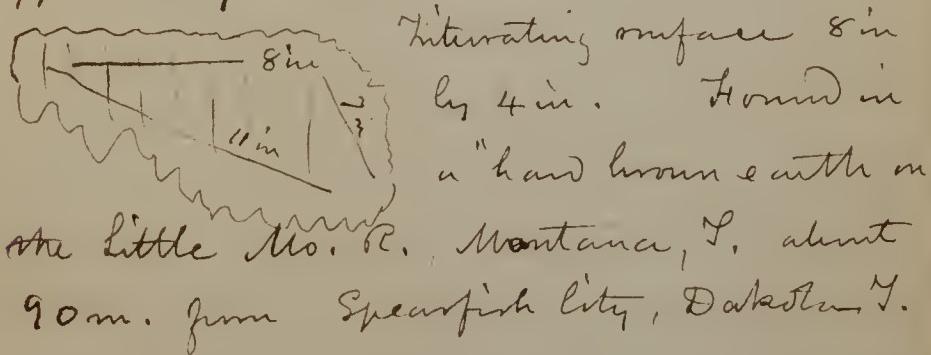
specific names.

acuminata	compacta	integra
angulosa		inconspicua
aegualis		incurva
angustata	dissimiles	inflexa
affinis	dubia	
ambigua	diaphana	
aspera	dura	lepidia
appendiculata	elliptica	lunata
	exalarginata	
acuta	legans	limosa
alata	formosa	laevis
brevis	firma	laevissima
cristata	fusca	linearis
cuspidata	genuflexa	limpida
carinata	gibberula	lacustris
crassa	gibba	lanceolata
convexa	gigas	latissima
clarata	guttulifera	latiscula
emarginata	gracillima	lata
cardinalis	granulata	
capitata	gracilis	maxima
crassa	hyalinia	microstoma
crassula	inflata	minir
cincta	imperialis	minima
columnaris	incurvata	minutissima

mutabilis	radisa
major	rhomboica
neglecta	spectabilis
nana	subrotundans
nodulosa	splendida
nodosa	sculpta
nobilis	signata
nummularia	subtilis
ovalis	
oblonga	truncata
orbicularis	tumidula
obtusa	tenella
pulchra	tumens
paradoxa	tumida
parva	utriculus
parvula	
pygmaea	varians
insilla	
paludosa	
pustulata	
pectinatis	

Oct. 1881 Mr. H. C. Lichtenhauer, exhibited a specimen of a well worn last lower molar of *Elephas americanus*, found by him in gravel at 8 ft depth in vicinity of Elmira, N. Y.

Oct. 29, 1881. Letter of J. Bushner giving notice of a molar of an Elephant, apparently last lower molar.



Development of microscopic organisms in the

July 5th 1882 Trip to Lake George. Wife, Alice
& Miss Kress in company.

P. R. R. 1 p.m. for N. York, Delawasse Ferry.

Steamboat for Albany from just above latter.

Licket to Glens Falls \$11.90 State room \$2.50 each

Arrived in Albany at 5 a.m. Omnibus to Delavan
house for breakfast. Train for Glens Falls at 7.

Then to Caldwell's S. S. & then steamboat to
Bolton fare .50 Put up at Bolton House,
July 6th. Mr. Brown proprietor.

Thursday July 27th left Bolton for
Albany, thence to Boston, via Albany &
Boston R. R., 202 m., fare \$4. arrived at 10
p.m. & put up at Parker House. Left day
28th at 11.20 a.m. by Eastern R. R. to

Glenister about 25 m. fare \$1. Put up
at Bass Rock House, Bass Rocks, Glenister
Mass. A rocky cape stream with large
granite boulders. Left Aug. 9th.

Aug. 2^d Trip to Salem about 20 m from Bass
Rocks. Visited Essex Institute, where saw
Dr. Wheatland, with whom visited the
Peabody Institute & Museum. Good
collection especially of Corals & Sponges.

Lobster = *Homarus americanus*

Prawn of Smith = *Penaeus setiferus*

Prawn (small) = *Palaemonetes vulgaris*

Sand-shrimps = *Crangon vulgaris*

Mole-crab = *Hippa talpoidea*.

Eupagurus pollicaris (L.) Neomit

" *longimanus* " *dr.*

" " *Bernhardus*

Callinectes hastatus (edible) Blue-crab.

Gelassimus pugnax. Marsh Fiddler.

Sand Crab = *Ocypode arenaria*

Lady " = *Matymythus ocellatus*

Spider " = *Lilimia canaliculata*

Rock " (common) *Cancer irroratus*

Mantis-shrimp *Squilla empusa*

Bolton, Lake Erie July 24. Dine with Mr.

Thompson at Warrenskey. In vicinity found at road side an enormous calcareous boulder probably 20 ft in diameter.

Lake George July 20th 1882.

From a "Rock bass" Many white Tape worms, *Taenia* from 8 to 12 inches in the stomach. Many small *Echinorhynchus*, white, 6 to 14 mm in length, in stomach and intestine. *Echinorhynchus*. White, curved, cylindrical rather thicker in front, slightly rounded behind. Proboscis cylindrical, with 24 circles of hooks. Proboscis 1 mm long. Body 0.75 mm thick. *

Tanmia Head prominent, just four circular toothed, no hooks; neck none, or divisions following immediately after the head. & central prominent papilla to head, succeeded immediately by the four circular toothed. Head 0.5 long by 0.625 broad. Mouth 0.3 diameter. Posterior segments, transversely elliptical, from 2 to 3 times the breadth of the length, & half the thickness. Posteriorly 2 mm wide.

* Length measured 14 mm long 1 mm thick with proboscis 1.25 mm long & with 24 circles hooklets.

Rock Bass = *Ambloplites rupestris*

Micropterus nigricans.

"Desirable rooms at Bolton Home"

Mrs 24, 25, + 27.

Bass Rocks, Gloucester Mass. Aug 1. 1882.

Rose colored Trematocarpus.

Long, slender, bright red, cylind-
roid, flattened from above downward, in
transverse section elliptical about
twice as ~~thick~~ wide as thick. Bright
rose red above, lighter beneath and still
lighter laterally. Head or upper lip
conical, compressed from above downward;
mouth longitudinally elliptical. Peduncle
long & narrow. Length from 5 to 10 inches
by from $1\frac{1}{2}$ to 3 mm wide. In contracta
condition about 5 in long, 3 mm wide and
 $1\frac{1}{2}$ thick. Elongated 10 in long $1\frac{1}{2}$ mm
wide. In some of Mya beds, just
below Bass Rocks. In some beds
Nereis.



Tip of head or lip lighter ——————
in color; length of head 3 to 5 mm.
Eyes none.

Fauicia

A small worm living in sandtubes matted in patches on the rocks about attachment of *Hucus vericulosa*, abundant on Bass Rocks, between tides.

Body of eleven setigerous segments besides the head, all except the first are supplied with proctal hooks.

Head with six arms provided with numerous narrow cylindrical ciliated tentacles, a broad semicircular lip above, which the animal recurves. Several palpus-like appendages to the mouth. A pair of eyes. Caudal segment with a dorsal flattened half oval prolongation with a conspicuous pair of eyes. First segment with no hooks; a pair of fascicles of 6 or 7 setae each.

Segments from 2d to 4th. with a pair of fascicles of 8 or 9 hooks, & a pair of fascicles of 6 or 7 setae each.

Segments from 5th to 8th with 6 to 7 hooks in each fascicle and 6 to 7 setae in each fascicle.

In segments 9th to 11th 4 or 3 and two setae to each fascicle; and hooks in curved, transverse, comb-like rows, from 20 to 28 in each row.

The setae generally, long, abruptly bent & tapering to a fine point, with the distal portion provided with a feather like rame which is finely striated; there has well developed, usually one or two in a fascicle with a comparatively short rame.

Hooklets of the anterior eight segments with a curved manubrium, ending in a short robust curved hook, often bifid or forcate on the dorsum and often striate or feebly dentate. In incising fan-like fascicles.

Hooklets of posterior 3 segments in one transverse semi-circular comb-like rows, numerous, minute, each ending in a minutely dentate blade.

Blood red. There appear to be three principal longitudinal vessels extending along the convex of the

intestine. The latter is brownish yellow and narrowest posteriorly. In the last pair of segments when dilated it exhibits active ciliary motion extending into the oral aperture.

The worm deposits eggs within its tubes where they are hatched, & the young are retained for some time.

The cephalic eyes exhibit a vitreous humor enclosed by a choroid. In several of the specimens, one of the two eyes was associated with two choroids. The eye-like spots of the caudal segment appear to have the same function as the true eyes.

Worm with extended tentacles measures about 3 mm to 4 mm. and $\frac{1}{4}$ mm thick. Young ones measured 0.12 mm long by 0.016 wide.

Setae f. in 0.12 to 0.24 mm long.

Anterior hooks 0.08 mm long.

Posterior hooks 0.04 mm long.

Nematoïd. Barn Rock Aug. 3. Among sand
tubes of *Fallicinus* at root of Fucus.

Body cylindrical, white; head tapering
surmounted by several short points
and encircled by 8 pointed barbels
in pairs. Posterior end incurved;
tail conical, curved, ending in
an elliptical club-like extremity
Apparently with a spine from
the generative & anal orifices -
See figure. A row of hairs on each
side between the two orifices.

Length 9 mm by 0.16 mm wide.
Length of tail from anus 0.24 mm.

Oesophagus cylindrical, followed
by the cylindrical intestine of but
slightly greater diameter. Male?

~~~~~  
Nematoïd with preceding Aug. 4th  
cylindrical, white; head tapering, blunt,  
with a circle of four small barbels.  
No spine with an armature of teeth.

Posterior end feebly incurved. Tail short  
conical, blunt. Oesophagus long

cylindrical; intestine cylindrical. Gen.  
aperture not detected. Length 1 cm.  
breadth 0.2 mm. See drawing.

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Nyctotherus of *Julus marginatus* at  
Lake George - measured 0.1 mm long by  
0.06 broad

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*Actinophrys Eichhornii*. Sep. 2, 1882  
From Fairmount with *Rumatella*, &c  
Body 0.26 mm, rays generally about 0.2 mm  
some even three times as long or 0.6 mm.

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Lake George, July 10, 1882.

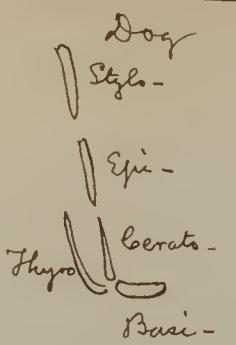
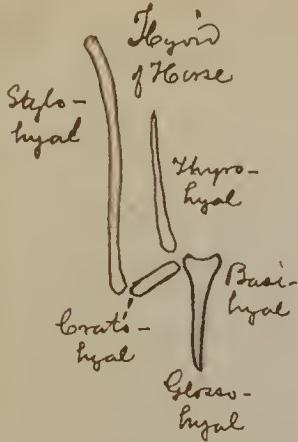
Mr. Bailey, jeweller of Philadelphia  
gave me the following information in regard  
to the gold images of Chinqui formerly offered for  
sale by his firm & that of Caldwell some years  
ago in the city. They were consigned from  
Central America to Mr. H. Thierist of New  
York, from whom they were purchased.  
Among the objects there were about 100  
circular plates of thin gold about 10 or 12  
in in diameter, apparently hammered out

of native gold, slightly dished, each  
weighing about 2 oz., 22 carats fine, no  
engraving or other marks on the plates.  
They formed a pile about 8 inches high.  
As there was no sale, they were sent  
to the Philadelphia mint and  
melted up.

He informed me that he had seen  
in possession of M. Mozenna, a  
dealer, in Paris, 8 or 10 diamonds of  
oval or olive shape, faceted and  
highly lustreous, each from 4 to 10 carats,  
which were perforated through the  
axis with an almost imperceptible  
hole and so fine as not to admit  
the passage of a human hair. Come  
from Pekin and obtained during the  
English war with China.



Boulder at Bass Rocks, Mass.  
19 ft long, 10 ft high, 14 ft wide one end & 8 ft at  
the other end. August 1882.



July 26, 1883 on Cirsium lanceolatum  
or common Thistle noticed multitudes  
of Cicadellæ, on under sides of leaves,  
hARBORING numerous large black  
ants. Cicadella with two carinate  
protuberances on back, with lateral  
brown maculae. Wallingford Del. Co.

Aug. 30 nearly all reduced to dust over the ground.

Aug. 29. On meadow near the creek, but on the  
hill side observed, scattered over a patch of  
ground of about 8 in. square, 11 masses of  
Ethelium septicum? ranging from  $\frac{1}{2}$  in to  
2 in. in diam., mostly half oval, some of several  
oval lobules, the largest one irregular, cream  
colr, pulverulent, with portions of hyphothelus  
brown, interior black. Were elevated a little  
above the ground and dead leaves but mostly  
adherent to living plants; 1 on a corey, two on

Wallingford, Del. Co. 1883

Aug. 1. On the Black Mulberry Morus nigra. On under sides of many of the leaves, were many flies, Musca, resembled house fly, but much larger, attached by a fungus parasite, perhaps Empusa, cream colored, of irregular cylindrical rods or tubes of variable length, and elliptical spine-like bodies. All white or colorless, with fine granular contents and clear oil-like globules, of which there were usually two in each spine-like body.

Spine-like bodies about 8 long 4 wide, or from 7 to 9 long by 3 $\frac{1}{2}$  to 4 wide. Tubes 4.0 cm. by 3 wide - also shorter & longer.  
Small Herbarium No 7.

August 1. On Sweetbriar hill in woods  
on a stump of Ash. Found a Frichia,  
dark ferruginous brown, mostly in fascicles  
on short stems, a few simple. Head oval,  
Capillitium apparently of one interminable  
tortuous thread, without branches or  
anastomoses, with double spiral line &  
minutely echinate, ferruginous red in  
color, less than 2 div. diam. Spines of same  
color but little lighter 3 div. diam. № 10.

On some stumps Arcyria cinerea.  
Brownish oak-colored, about 2 mm long, head oval  
cylindrical. Capillitium of retiform, colorless  
tortuous, transversely ridged threads. Spines 2  $\frac{1}{2}$   
or from 2 to 3 diam № 10 colorless, depressed  
on one side. Stem distinctly cellular.

On some stumps abundance of Stemonites  
fusca in dense groups, individuals 14 mm  
long. Head ochre brown, cylindrical acute at  
summit. Stem, column & capillitium black.  
Spines brown, 3 div. diam № 10.

July 26. Bentons wood. Cochlearia

argillacea. Abundant on a block of decayed wood. Multitudes scattered. Boutly 2 mm high. Heads globular. Light brownish clay colored. Stems reddish brown. Persistent portion of the peridium yellow, radiate striated. Retinulum above with stellate nodes, yellow. Spores yellow 2 to 2 1/2 mic No 10

Physarum album July 24 Bentons wood

on broken end of a decayed tree branch. Scattered in patches. about 1.5 mm high. Head white, oblate spheroid, black within. Stem cream colored. Spores brown with an amethystine hue in mass. 3 div No 10.

Acynea punicea July 18 growing on dead branch of Morus rubra about 2.5 mm long. Head ovoid, scar-million color, capillitium elongating after bursting of the peridium, tortuous astinlar, transversely ridged. Spores depressed on one side, 2 div with No 10. Heads & spores appear pale pinkish & red matter appears as a separate diffused coloring in alcohol.

The same examined in water, the spines appeared colorless or with a faint pinkish hue.  
2 to 2 1/2 div with No 10, spherical (The depression on one side appears to be result of action of the alcohol) The threads of the capillitium were dark red - the color removed by alcohol.

Aethalium septicum. Partially attached to a tree stump, but for most part extended on some powder of some and on the twigs & leaves of a neighboring plant. Thallus oval 22 lines by 12 & about 5 lines thick. External surface orange and sulphur yellow. Internal spongy mass black. Spines pale violet brown about 3 div with 1/10 July 15th 1883.

Trichia turbinata: Glibly crowded in a patch 1 1/2 inches long by 4 lines wide on rotten hemlock log. Peridia smooth, sessile, about 1 m. capillitium of an interminable tortuous yellow thread with double spiral line & minutely echinulate. Spines large, yellow, slightly angled & minutely tuberculate. 4 div. No 10. Swarthmore Aug. 4, 1883.

Trichia pyriformis. Peridia oval, shining black, in groups, sessile; capillitium of long tortuous threads doubly spiral and distinctly echinulate; spores large (3 to 4 diam. No. 10) round or oval, with minutely granulate surface. Thread & spores in mass burnt sienna color, under microscope raw sienna color. On decaying wood. Wallingford.  
Other groups Indian red, & others blackish red, pyriform or turbinate, appear in close sessile groups. Spores & threads as above. Internum of spores appears minutely granular. Probably T. pyriformis. Aug. 8, 1883.

Spores mostly about 3 diam. a few even  $4\frac{1}{2}$  diam. All with a clear nucleus. Threads 2 diam. Spores globular, oval or round. Capillitium with spores in mass, in water, appear decidedly burnt sienna color to naked eye. Under microscope both appear raw sienna colored.

Arcyria ochroleuca? On decaying chestnut log, Aug. 9. In groups, but separated. Peridium cylindric, round at top, pale clay colored, stem shorter also clay colored. Capillitium of setiform threads transversely rugous, pale clay blue, ~~about~~ about 1 div. thick. Spores transparent, colorless from 2 to  $2\frac{1}{2}$  diam No. All rugous with a white margin.

Trichia pyriformis. in greatest abundance in the crevices of the bark of a decaying chestnut log. Aug. 9. often with the shining black pyriform heads in a circular fascicle supported on a brown striate stem 2 mm. long. Capillitium forms a red brown ferruginous mass.

Trichia chrysosperma crowded, sessile oval or transversely oblong, bright ochreous yellow. Capillitium of finely echinulate, double spiral threads, with acute hook like ends often ending in double hooks, bright yellow. Spores 4 div. bright yellow covered with reticular ridges. Threads 2 div. No 10. on a chestnut log. Wallingford Aug. 7. 83

Trichia turbinata? Aug. 14, 83. Wallingford.

In close patches, crowded, sessile, top-shaped, 000 or thus longer than broad, slightly narrowed below the middle, shining yellowish brown to ochre colored. Capillitium bright ochre yellow, mass of spines the same. Threads tortuous, with double spiral lines, ends hook-like acute, bright yellow. Spores large, double contoured, with reticular ridges, bright yellow, round or oval, .012 to .015 mm. Threads .006 mm, minutely echinulate. On bark of a chestnut log.

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Psoces

? Observed Aug. 1.

near base of trunk of Acer pseudoplatanus.  
Four patches of which length about  
6 by 3 inches. Perfect insects and  
larvae. Abdomen brown with narrow  
rings of pale yellow; head & thorax  
pale brown; wing covers black with  
whitish veins. Three ocelli. Two  
joints to tarsi besides ingues; long  
black antennae.

Length of perfect insects including wings  
about 4 lines. Observed on Sugar  
Maple and on Linden Aug. 4 & 5th.

---

August 13, 1883 Wallingford No 4

Smallest Katydid. Male

Wing cover elliptical 37 mm long

11 mm wide outline.

Hind tibia 72 mm femur 31,

Tibia 33 mm. tarsus & anguis 5 mm

Antennae 40 mm. Membr. wing 40 long.

Lower Subcaudal process, hardly projecting  
beyond the lateral ones 3 mm long, notched at  
end; straight.

Length from head to end of subcaudal process 24 mm.

Second sized Katydid. Male. № 2

Wing cover rhombus-elliptic, 44 mm  
long, 15 mm wide

Hind limb 50 mm  
femur 22 tibia 25  
tarsus 5 mm.

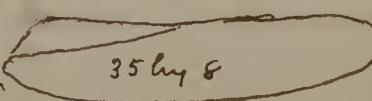
Antennae 47 mm. Membr. wings 50 mm. long

Abdomen ends as in former, subcaudal  
appendage straight, scarcely longer than the  
lateral ones, forked or notched at end, 5 mm long  
Philatelus sp. form. P. virens. Proximally  
minimally. \* forked straight

Smallest Katydid. Common form.

Male. Antennae 45 mm. № 3

Hind limb 50 mm femur 26 tibia 28

Front green except back of hind tibiae  
which is reddish brown. A subcaudal  
recurved appendage, 7 mm in straight line,  
forked at the end. A shorter dorso caudal  
appendage.  
shorter than  Elytron  
ala.

Length from head to end of subcaudal process 27 mm

\* forked at apex

Down in № 1 brown with green rachis

" № 2 + 3 green

" № 4 brown & green into green rachis.

Experiments with Spores of various  
Mycomycetes. Wallingford 1883.

Animalcula cage employed.

Introduced spores of *Ethalium septicum*  
July 20th No perceptible change to  
25th, when accidentally lost.

July 20 Introduced spores of *Stemonitis fusca*. measure .009 mm.  
23d no change 24th no change  
except appearance of numerous  
*Bacterium* forms, and many  
*Globularia* Monads & a very few  
minute *Amoebae*. 26th no change  
28 no change except disappearance  
of Amoebas and giescence of  
Monads. July 30th no change  
Aug 1 no change 3, 5, 7, 9th do  
when examination discontinued.

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Aug 8th Spores of *Trichia pyriformis*.  
" 9th 24 hrs after no change.  
" 10th " " do except  
production of swarms of *B. teomes*.

Aug. 11th no change Aug. 12th do.

Aug 13th do introduced little

fragments of bast. Aug 14th no change

Aug. 15th no change - 16th do.

Threw away on 16th. and introduced  
same seeds on heart on the 14th. No  
change on the 17th no change on Aug. 20th.

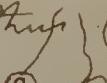
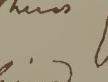
August 14th.

Introduced the large yellow areolated  
spores of *Trichia turbinata*, .012  
to .015 diameter. Aug 15. no change  
many smaller colorless spores had  
germinated in the usual tubular  
manner. Aug. 16 no change; but  
the small plants continue to  
grow. Aug. 17 no change. Aug. 20 do.  
Aug 21. No apparent change in spores. Noticed  
for first time a multitude of minute scarcely  
visible Anucleate, about half the diameter  
of the spores, of slow movement, but some rapid  
change in form, mostly oval, elongated elliptical  
clavate, angular, faintly granular, with a  
contractile vesicle; but no visible nucleus.  
measuring when circular about .006 mm or  
elongated .012 long by .003 broad. Also as usual

multitudes of *Bacterium* forms present. See drawing  
for Amoebae.

Aug. 22 No evident change in Spores. The minute  
Amoebae nearly all disappeared.

Aug. 24<sup>th</sup> no apparent change. There were  
present abundance of the following.

1. Numerous rounded about .006 mm, round  
or oval or variable in form  & more with  
a sudden jerk, or rapidly zigzag forward or  
in gyrations.
2. Fewer larger, mostly oval, with little  
change of form  .012 by .009,  
moved slowly & regularly forward.
3. A few larger than any other forms, were  
slow moving, gliding, changing shape  
in amoeboid manner, but never  
emitting pseudopods, about .015 mm  
when round or angular, thus  or .021 by .009 when thus  
often seemed notched behind  
thus . Occasionally apparently  
with a filamentous caudal appendage  
thus . Are they embryos of the  
spores?

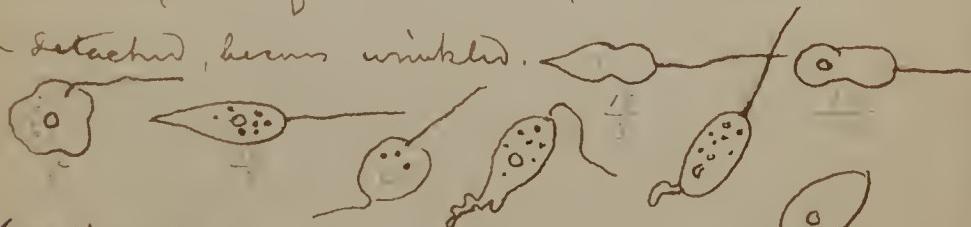
4. In addition minute Amoebas, about .009 dram



Aug. 25 No change in spores. Present great swarms of the jerking monad No 1.

Aug. 30 No apparent change in Spores.

Amoeboids No 3 appear to have a posterior appendage like the flagellum, but comparatively inactive. Often appears as a prolongation of the sarcade which becomes a mere filament. Often used as point of attachment, & when stretched & detached, bears wrinkles.



(No 1. W. im. An apparent nucleus but no cont. vent.)

Sep. 1 No observable change in spores.

Sep. 3 do. Same bright yellow with interior granular aspect with one or several clear nuclei - Nos 1 + 2 monads still abundant - No 3 not seen again for several days.

Sep. 7. Spores unchanged. Abundance of No 1 + 2 together with many minute very slow moving Amoebas, and a ciliata infusorian here & there generally quiet & then suddenly darting away.

8. Sep. Invaded by a Forula.

Sep. 9. No apparent change in spores.

The smallest monad very numerous  
apparently ovoid from above or below and  
reniform laterally.

2 to  $2\frac{1}{2}$  long 1 to  $1\frac{1}{2}$  broad, flagellum about  $1\frac{1}{2}$   
times length of body. Apparently a mouth, a  
protein cont. ves. and globules & granules.

(No 5) Ciliate infusorian, ovoid

0.018 mm long by 0.012 broad, with a  
short blunt beak , a nucleus  
central, several globules and a C.V. behind  
with long cilia, of which some longer.  
Remains quiescent & cilia appear not  
to move, then sudden starts of  
& a dash & become again stationary.  
This infusorian fragment.

Also many minute irregular Acanthobea sp 4

Sep. 10th Another Acanthobea observed 0.036 mm

by 0.009 mm four times length of breadth, slug-like  
in form, moves slowly forward without change of  
shape or projection of pseudopods (moved its own  
length in about 2 minutes) clear at ant.  
obtuse rounded extremity with a nucleus; behind  
this granular but no C.V. detected.

Sep. 10. night 9 p.m. No evident change in Spores.  
See over. Sch. 5. 1111

*Arcyria cinerea*? Swarthmore  
Aug. 30, 1883. On decayed ash stump.  
gregarious, I crowded, heads cylindri-  
cal, rounded at top, whitish ash, or gray,  
pedicel darker ash, shorter than the  
head 4 mm long = heads 2.5 long  
pedicel 1.5 long. Capillitium of  
stipitate tufts, transversely ridged  
threads .003 mm thick; spines, round  
colorless .006 to .0075 diameter

*Trichia* ? on same stump  
variety Gamboge yellow, crowded in  
groups, globular, oval, sometimes  
in apparent pairs or three confluent,  
sessile, shining, about  $\frac{2}{3}$  mm in  
diam. Spines large, finely granular  
with 1 or 2 nuclei, smooth, with  
thin envelope, .0012 to .0015 mm in  
diameter. Capillitium of darker  
yellow, threads with double spiral  
lines, with pointed ends, not  
echinulate! var. cream white

var. cream white! same form, size  
and structure as preceding. Shining  
cream white, but on drying became  
gamboge yellow nearly like former.

Spores and threads perfectly colorless,  
translucent, and smooth. Finally became  
translucent brown. Unripe of *S. cinnamata*?

*Boletus cyaneoculus*? Sweetmuss  
Pileus convex, about 2 in. above  
pale brownish, closely tomentose.  
Stem solid. Tubes white  
Flesh snow white; on breaking  
rapidly & visibly assumed a  
bright aigue blue, then  
prussian blue & finally ~~about~~  
an inky blackness.

Acyria incarnata. Heads opened  
with capillitium & pedicel oval, 2 mm  
bright Indian red. Threads red,  
spores paler, when isolated nearly  
colorless. 0.006 to .0075 mm diam.

(In same wood as the *A. cinerea* &  
*Frichia* above described. Sweetmuss.

Aug. 30. 1883.

Stemonitis

? Sphaeridium

Aug. 30, '83. on stumps. Small 2 to 2.5 mm  
Head cylindrical rounded at end, twice length  
of stem, black 1.5 mm long 0.375 broad.  
stem black 0.75 long, extends about  
three fourths way into head. Capillitium  
black, or chocolate brown. Spines  
round transparent chocolate brown,  
0.006 mm diameter.



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Sept. 11th & 12th Spines in the same condition  
bright & yellow but no escape of embryos. On  
the 8th was extensively invaded by growth  
of a Lomia, but adding water & stirring up  
the spines, broke up the growth of the latter  
which is no longer perceived. The  
ciliated infusorian active, but the  
flagellate ones have disappeared, except  
the smallest number. Sep. 15 Spines unchanged.

Sep. 16 Spores unchanged, abundance of the  
ciliated infusorian, but no amoeboids!  
Examined now over one month without  
any obvious change observed. Sep. 18 Spores  
unchanged. 19th 20th No change Infusorium still  
abundant. Same condition on Sep. 22, Finis.

Sept. 6th, the apparent decayed inner bark  
of a White Oak, of yellowish white color and  
pulverulent, on exam. by mic. proved to  
be in large proportion composed of  
conspicuous crystals from  $1/2$  wood th.  
to  $1/600$  th of an inch with very little  
variety of shapes. Apparently Monoclinic.  
Soluble in warm muriatic acid  
without effervescence.

Measurements from 0.012 to 0.04 mm.  
On examination of the decaying  
bark of a Chestnut observed the  
same crystals in great abundance.  
Appear to occupy the bark cells  
in single rows or columns, in which  
about 60 crystals were counted in  
the length of a millimetre. The cells  
were about 0.024 broad. Crystals  
supposed to be Calcium Sulphate,  
See drawing of Sep. 8th. Gypsum?

Schacht, Dr. H. Anat. u Phys. d. Gewächse.

Berlin 1856, I, 399 says "In der Regel erschei-  
nen die Sphärolithe in bestimmten Zellenröhren in  
den Zellen, welche die Bastlündel in den  
Rinde der Bäume umgeben.

Page 400 "Die Bartszellen scheinen außerdem die unorganischen Salze, z. B. den schwefelsauren Kalk u. s. w. von der Rinde nach außen zu führen und auf diesem Wege an benachbarte Parenchymzellen abzugeben, in welchen diese Salze als Krystalle abgeschieden werden. Für diese Vermuthung spricht mir das reichliche, niemals fehlende Vorkommen der Krystalle in der Rinde unserer Bäume, wo dieselben immer in der unmittelbaren Nähe der Bartschüindel auftreten, als vorzügliche Beispiele: (*Quercus*, *Salix*, *Populus*, *Larix*).

Sep. 10. Examined liber of White Oak, Black Oak  
Chestnut. Crystals apparently in little  
squarish cells from .012 to .024 mm.,  
arranged in longitudinal rows, largest at  
middle and tapering at ends, occupying  
comparing intervals among the lignous fibers.  
~~except the~~ cells, bunt cells, of the liber; the  
rows containing from 25 to 45 crystals.

Counted 45 crystals in a row in the Chestnut

Counted 25 in a row in white oak. In this also counted 55 crystals in length of 1 mm. Number generally from 11 to 14 in the space of  $\frac{1}{5}$  th mm.

Many of the crystals observed in a *Polydermus granulatus*, and also *Aesulinus seminulum*. 6 specimens, largest 0.048 long 0.036 wide, smallest 0.04 long 0.032 wide. Also 4 globular *Difflugias* (O) yellow, granular 0.04 high 0.056 broad, circular mouth 0.024.

Multitudes of crystals in lava of a *Lamellidium*, taken from under bark of a chestnut log. Sep. 12. Probably lava of *Lucanus*?

Sep. 15. In white oak counted 32 and 35 crystals in single rows. Counted the following numbers in 100 dir mic No 7 = 0.4 mm : 21, 26, 28, 25, 22, 24. About

30 & 35 occupy the space half a mm.  
Counted the following numbers in rows: 32, 33, 34,  
36, 27, 30.

Observed in fibers of Chestnut. Crystals in rows  
32 to 100 dir. mic. = 0.4 mm. Crystals &  
amount exactly as in White oak.

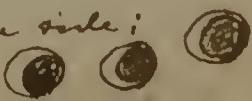
Crystals in fibers of Butternut, Juglans.  
cinerascens, in spherical aggregations \*

None seen in following: Pignut Carya glabra,  
Dogwood Cornus florida, Wild Cherry, Prunus  
cerasus avium, Hornbeam Carpinus, Beech Fagus sylvatica.

*Aethalium septicum*. Sep. 14th

Collected a portion on a strawberry leaf  
of the same observed Aug. 29 in the  
meadow. The ground in the portion  
at this time being black from the spores.

Sun. Sep. 16. Mixed a quantity of the  
sporular mass with water, which then  
diffused an odor resembling that of  
Opium. Portion placed in the cage  
at 12 noon. Spores spherical, smooth,  
chocolate brown, appear homogeneous  
& defined by a single black ring,  
uniform in size 0.009 mm diameter.  
Granular matter mixed with the spores,  
apparently of minute round tubules 0.0015 mm  
when in mass appear yellow. Exhibit  
 lively molecular movement - range from  
0.001 to 0.0015. Granules were all  
dissolved, with production of bubbles of gas  
by diluted muriatic acid. Portions of membrane  
still remain of a yellow color. Under action  
of the acid spores changed, the interior  
matter contracted to a brown ball, with  
a clear concentric space to one side;



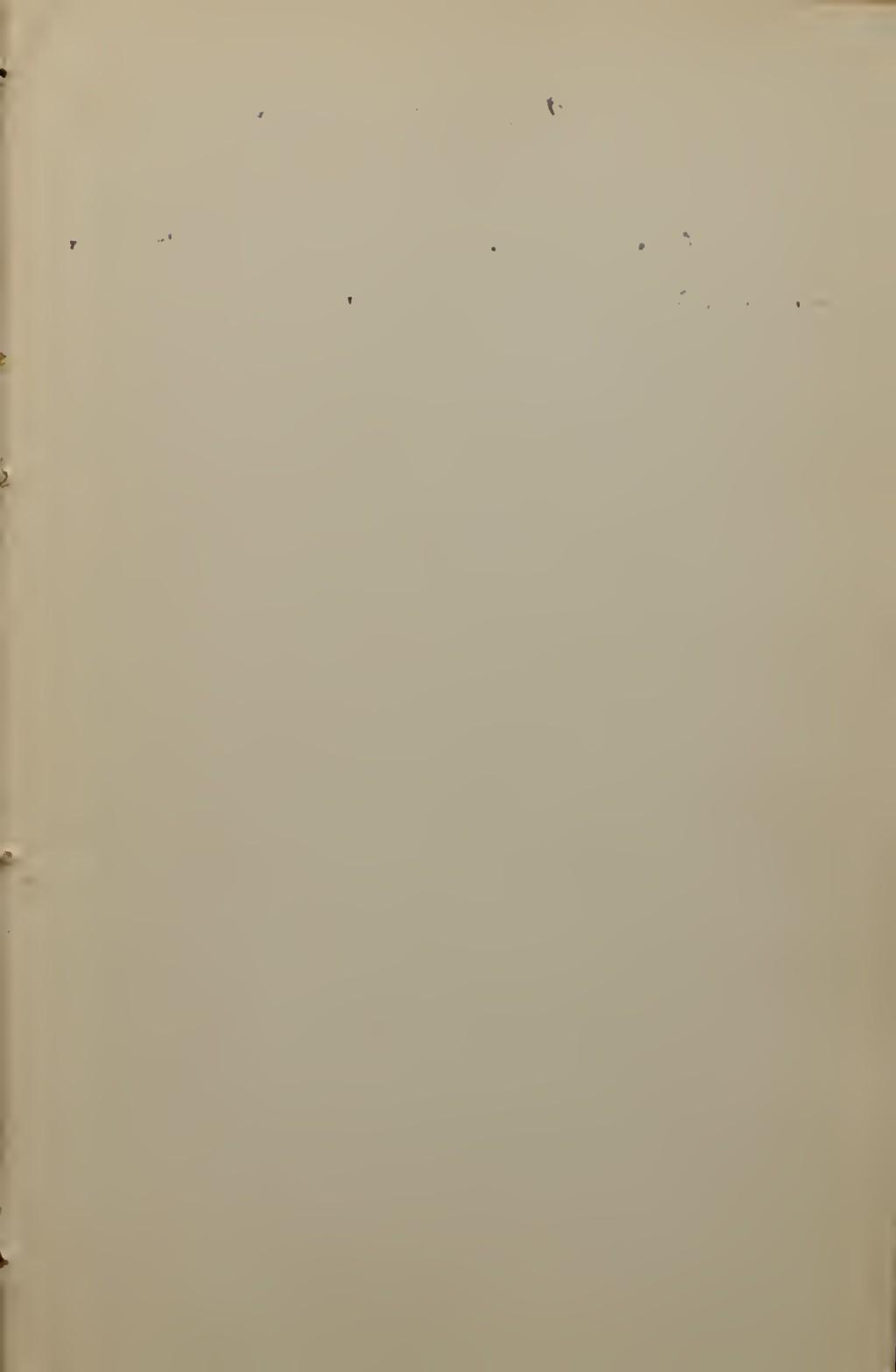
Sep. 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup> No apparent change  
in the Spruces. 20, etc change. Sep. 21 ~~had~~  
change Sep. 22 had accidentally dried up.  
Remoistened. No change on 23 + 24<sup>th</sup>.  
Sep. 25. Again dried up.

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Wallingford May 1884

Stemonitis May 24. Chocolate or  
dark ferruginous brown, grow in a  
clayey crowded group, on a willow stump  
Same described after 4 leaves.

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Lumbricus terrerus, Say. A new species of  
Lumbricus. By Thomas Say. Under head of  
Article VI, Transylvanian Journal of  
Medicine, Vol. IV, 1832.

L. terrerus, cylindrical, red; segments  
ineligual; sides & venter with 4 double longitudinal  
series of short, small, curved bristles or hooks;  
back unarmed; clitellus prominent & shining;  
posterior extremity not depressed, attenuated like  
the anterior extremity. This is our common  
earth worm, which has <sup>been</sup> hitherto considered as the  
same with the terrestris L. of Europe, which  
however has the posterior extremity depressed.  
It differs from L. leptozonum, Wagendrenck, of  
Sweden, by having a clitellus. The L. (Hypogastru)  
hartinei, Savigny, of North America is described  
to have a median-dorsal series of hooks or  
bristles. The species belongs to Savigny's genus  
Enterion.

*Manayunkia*. From Edward Potts,  
attached to pieces of pine bark, in  
association with *Aleymella* and  
*Fredericella*, from Egg Harbor, R.  
I. J. Sept. 20, 83.

Tubes faintly attached & in great part  
free & directed downward as in the  
*Polyzoa*. Tubes brown, of indefinite  
granular matter, somewhat annulate.

Specimen 1. Tube 7 mm long by  $\frac{1}{3}$  mm wide

" 2 Tube 8 mm,  $\rightarrow$  0.375 inch

Tubes mostly straight or slightly curved,  
attached at lower end, & free greater  
part of length

Specimen of worm from tube 1. Body translucent

slime green, tentacles tinted olive brownish.

32 tentacles or 16 on each side, of which 1  
larger than others, & containing a green vesicle.

Epithelial cells of tentacles about 0.015 mm?  
cilia of same about twice the length 0.03 mm

Worm 3 to 4 mm long by  $\frac{1}{4}$  mm thick.

Adult worm:- Head with tentacles followed  
by 11 setigerous segments. Anterior 8  
segments on each side furnished with

long setae, usually 6 to 8 sometimes 10, arranged in two bundles, and one bundle longer than the other.

1st segment with 6 to 8 setae in two bundles & no pedal hooks.

Segments 2, 3, 4: with 8 to 10 setae in two bundles & fascicles of 4 to 5 pedal hooks.

Segments 5, 6, 7, 8: 6 to 8 setae in two bundles & fascicles of 4 or 5 pedal hooks.

Segment 9: 6 setae in two bundles & close row of comb hooks ~~do~~ 9 to 22. (4 to 6 setae)

Segment 10: 4 setae do + 12 to 18 hooks. (3 to 4 setae)

In one specimen there was the following arrangement:

6th segment & others in advance 8 setae in two bundles and 4 hooks on each side

7th & 8th: 6 or 7 setae in two bundles, & another bundle of same number substituting the usual 4 hooks.

9th segment: 6 setae on each side; 20 hooks on one side & 9 on the other

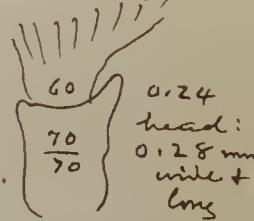
10th segment 4 to 5 setae and 13 to 16 hooks &  
11 segment 3 to 4 setae and 12 hooks on each side.

A worm, with tentacles gathered in a cylind.  
lunch measured 4 mm long. Body 0.375  
wide. Length of tentacles 0.75 Spread of  
tentacles about 1.25 mm.

Bundles of setae 50 = 0.12 of which  
about half the length were protracted.

At tail end

|        |        |        |
|--------|--------|--------|
| No 754 | 25     | ... 80 |
|        | ... 70 |        |
|        | ... 55 |        |
|        | 50     |        |



Body  $75 \pm 0.3$  mm  
wide.

Brownish spots at base of tentacles along  
the lipophore.

In another specimen - 1st setiferous segment  
appeared to have no hooks & 8 setae on each side  
The succeeding 7 segments with 3 hooks mostly  
& 6 to 10 setae on each side 8th segment with  
7 setae & 24 hooks 10th 3 setae & 18 hooks but  
on one side all the latter appear imperfect, perhaps  
degenerated 11th segt 2 setae & 14 hooks.

Of the posterior three series of comb hooks the  
1st row of 24 measured 0.08 mm wide; the second  
of 18 hooks 0.072 & the third of 14 hooks 0.06 mm  
height of the rows corresponding with length of  
the hooks 0.024 mm.

Setae 40 to 60 with No 7 = 0.16 to 0.24 mm.

Wallingford Sep. 25. *Lumbricus* common  
under bark of damp decaying logs -  
About 3 in. when quiet, ordinarily  
elongating to four inches or more.  
When irritated emits a yellowish  
granular liquor with smell  
of old tobacco pipe. Slime, The  
rings distinctly marked with  
dark reddish brown alternating  
with light flesh color, which  
is uniformly the color beneath  
About 95 annuli = 26 th fore part of  
body to girdle, which is slightly  
prominent & comprises <sup>5 or</sup> 6 annulations  
narrower & lighter than those in  
advance or behind. Secretion  
thrown out from between the annuli  
especially at fore and hind extrem-  
ities of body. Dark red bands  
of back extend on sides and taper  
& fade away beneath. Elongate  
to 4 or 5 inches. Four rows of sigmoid  
radial spines, in pairs behind pairs of  
partially developed ones. One 5 in by 2 lines.

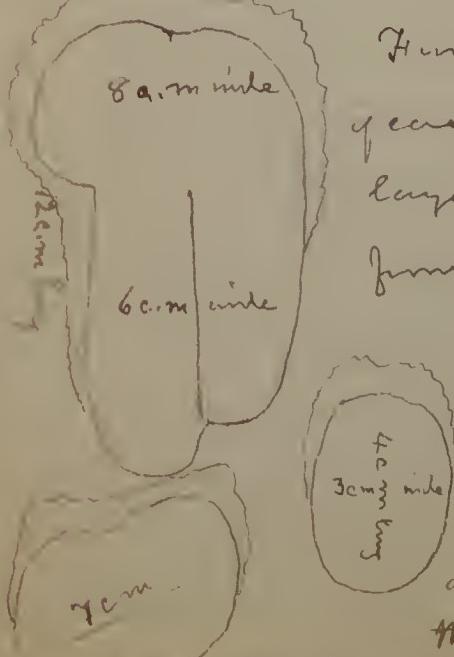
Wallingford 1884.

Observations on Myxomycetes.

June 8th. Observed on a rotten, decaying chestnut log, lying in a field. Ethalium septicum?

In three specimens, occupying a spaces of about 10 inches long by four inches wide, on the outside of the bark and on upper part of the log. In ripe state, looked like sections of light brownish pink sponge applied to the bark.

Rounded or elliptical masses convex above. These masses as follows:



From one extremity or side of each a spider-web-like layer extends irregularly from 1 to 2 cm in width.

The outer coat, exceedingly friable later and springy reticular in appearance was ~~about~~ <sup>about</sup> 3 ~~to~~ <sup>to</sup> 4 mm thick pale brownish pink

stem like, bright yellowish brown,

At the edges of the masses the color was  
one of a bright pale reddish brown, extending  
to the spider web like hyphothallus. The  
inner dense spongy mass was dark  
chocolate brown, or ~~the~~ brownish black.  
Thickness of the masses about 1 $\frac{1}{2}$  c.m.

The crust though generally from 2 to 4 mm  
thick in some portions at base of the  
masses reached 9 mm. Beneath,  
the spongy mass rested on a  
thin yellow layer next the bark.  
Spores transparent, with brown tint, spherical  
smooth 0.009 mm diam. when large.  
Crust of exceedingly <sup>fine</sup> spherical <sup>yellow</sup> molecules 0.0015  
apparently embedded in colorless cement or  
membrane. More accurate measure-  
ment of spores makes them about. 0.0075,  
that is two together would even in clumped in  
5 div. of the mic. & a row of 4 in 10 div.

Counts of spores obviously granular & often  
with an indistinct appearance of nucleus.

Three spores in line measure 8 div. No to  
" " " " " " " 9 div.

Usually isolated spores occupied 3 spaces of the micrometer  
= 0.009 mm.

May 24. On a river bank in a stream  
in woods, caps on surface of mud.  
Stemonitis fusca?

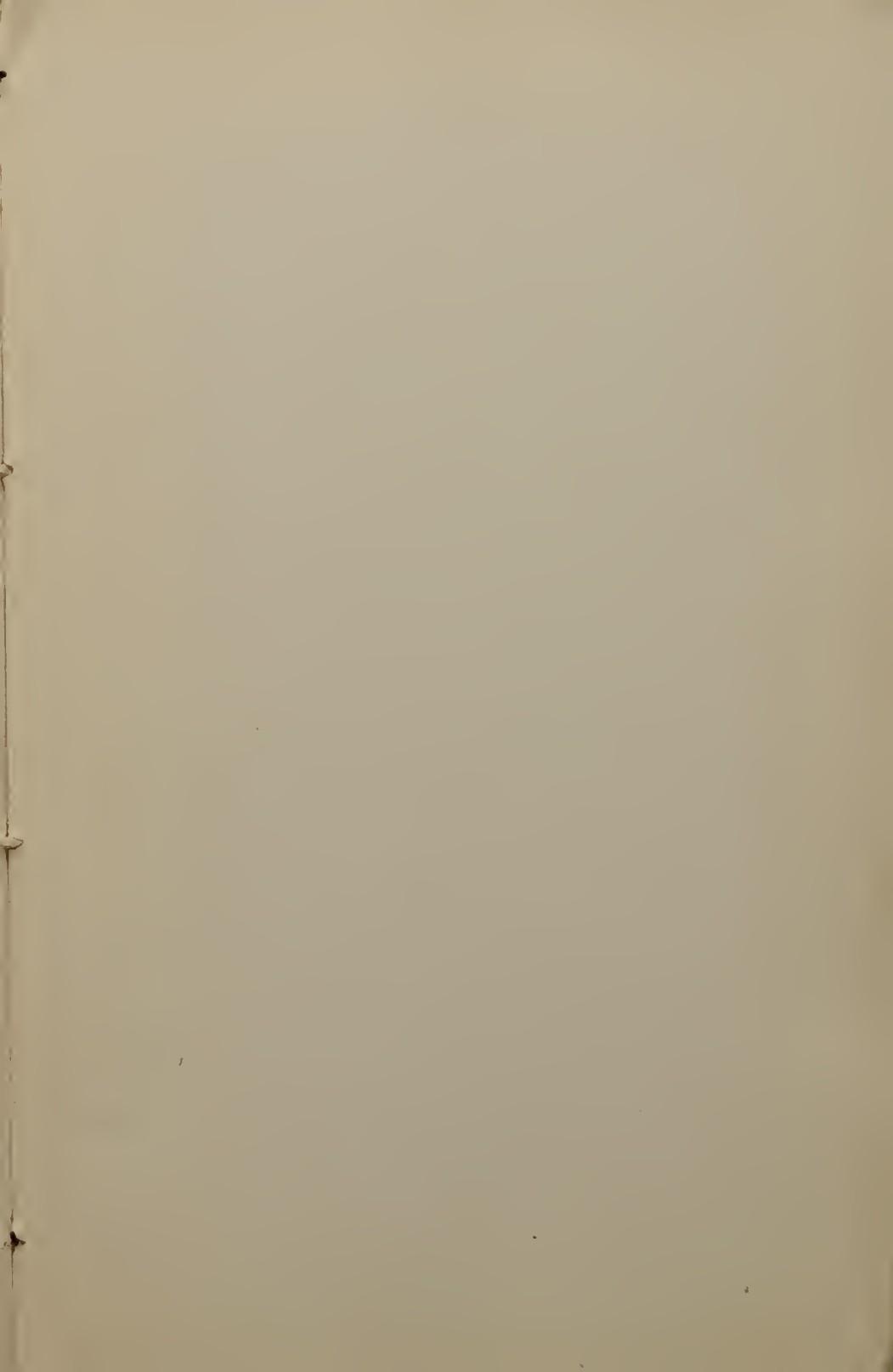
Found a circular compact truncate  
circular mass 1.5 cm in diameter and 8 mm high.  
Heads closely compacted, cylindrical, curved  
obliquely rounded at the free end, tapering above.  
Heads 6 mm long, chocolate brown. Stems  
shining black 1 mm long. Capillitium brown.  
Spores spherical, translucent brown 0.0075 mm  
Isolated spores generally appear to be 0.009 mm.

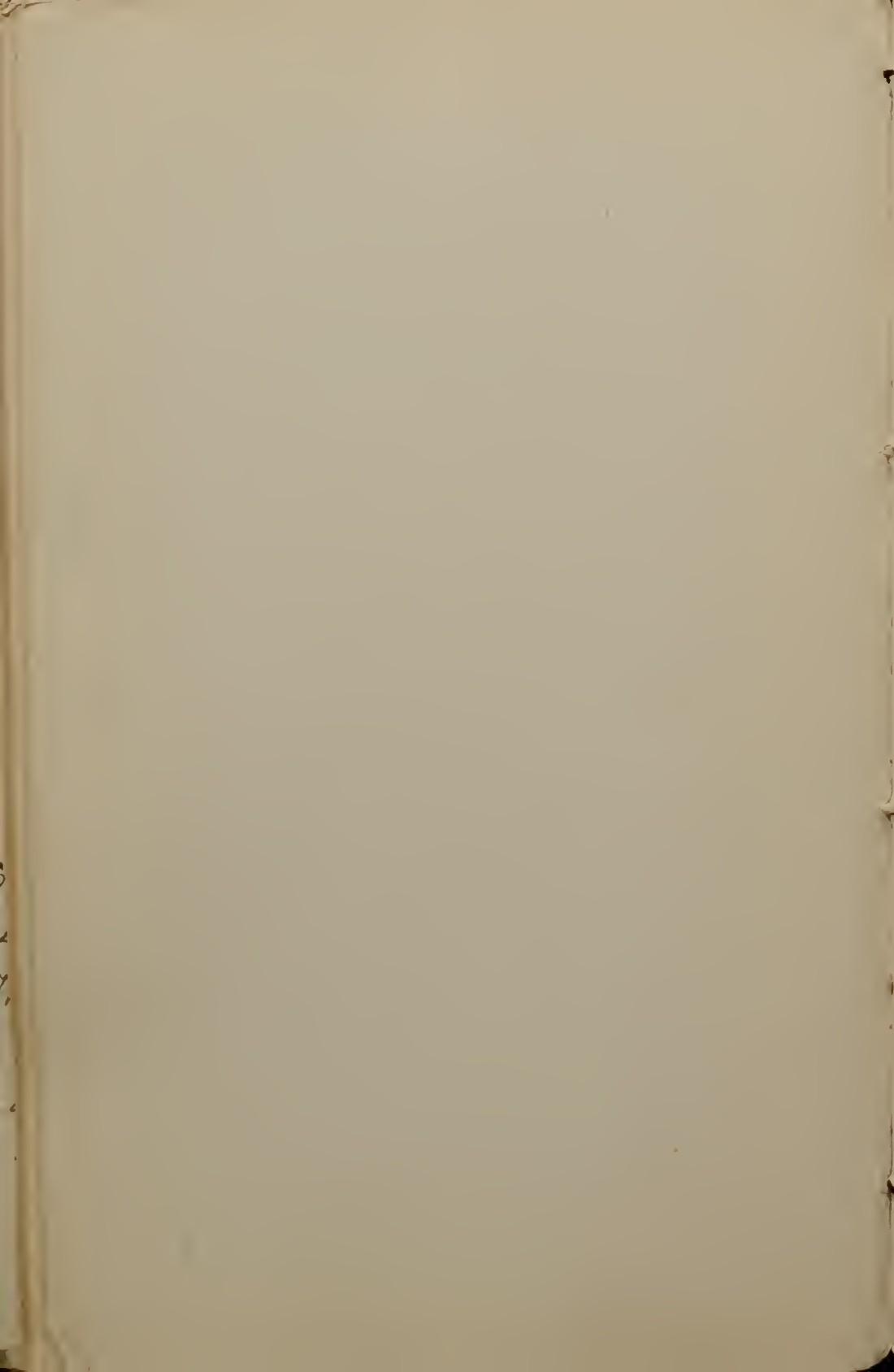
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June 9. 84. Introduced a quantity of spores of  
the Ethalium, collected the day previously, at 9.30  
in Cafe with clear water & three minute fragments  
of decaying chestnut bark. Water clear with no  
hysteria & only a few molecules of the Ethalium  
seen. Spores, O spherical, translucent,  
brown, pale granular with a few clearer  
molecules, defined with a single black  
circle, 0.009 diam. Evening no signs.  
June 11, 7 a.m. no signs. A few ~~at~~ monads  
present. Evening 5 p.m. no signs - but numerous  
hysteria developed.

June 19, 84. Observed an Ecthalium  
septatum. One mass about 2 in. diam.  
circular, with grayish parchment  
cover and interior black mass,  
on top of a bare jagged ridge of  
earth in a freshly plowed corn  
patch.

Wallingford.

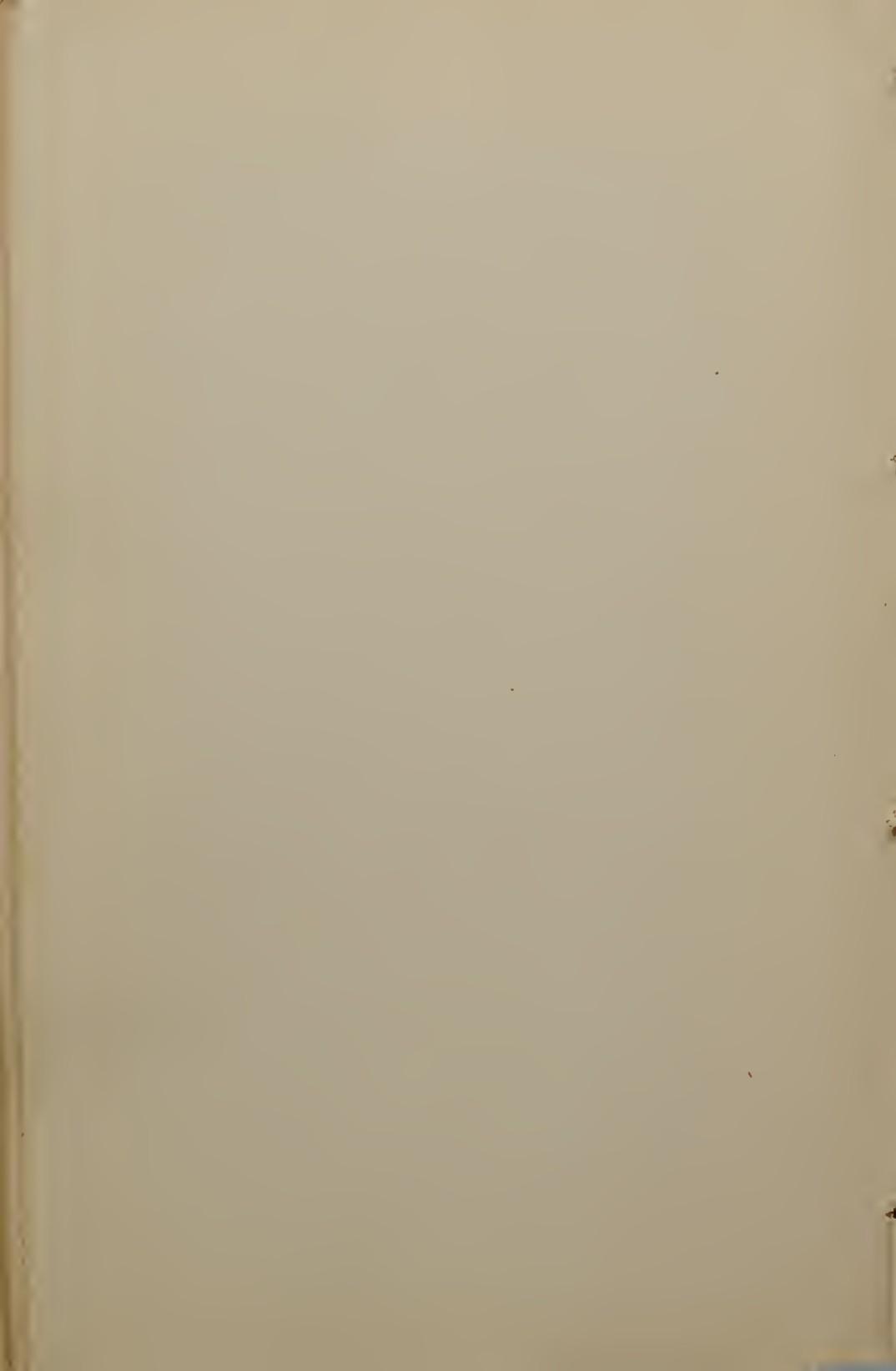


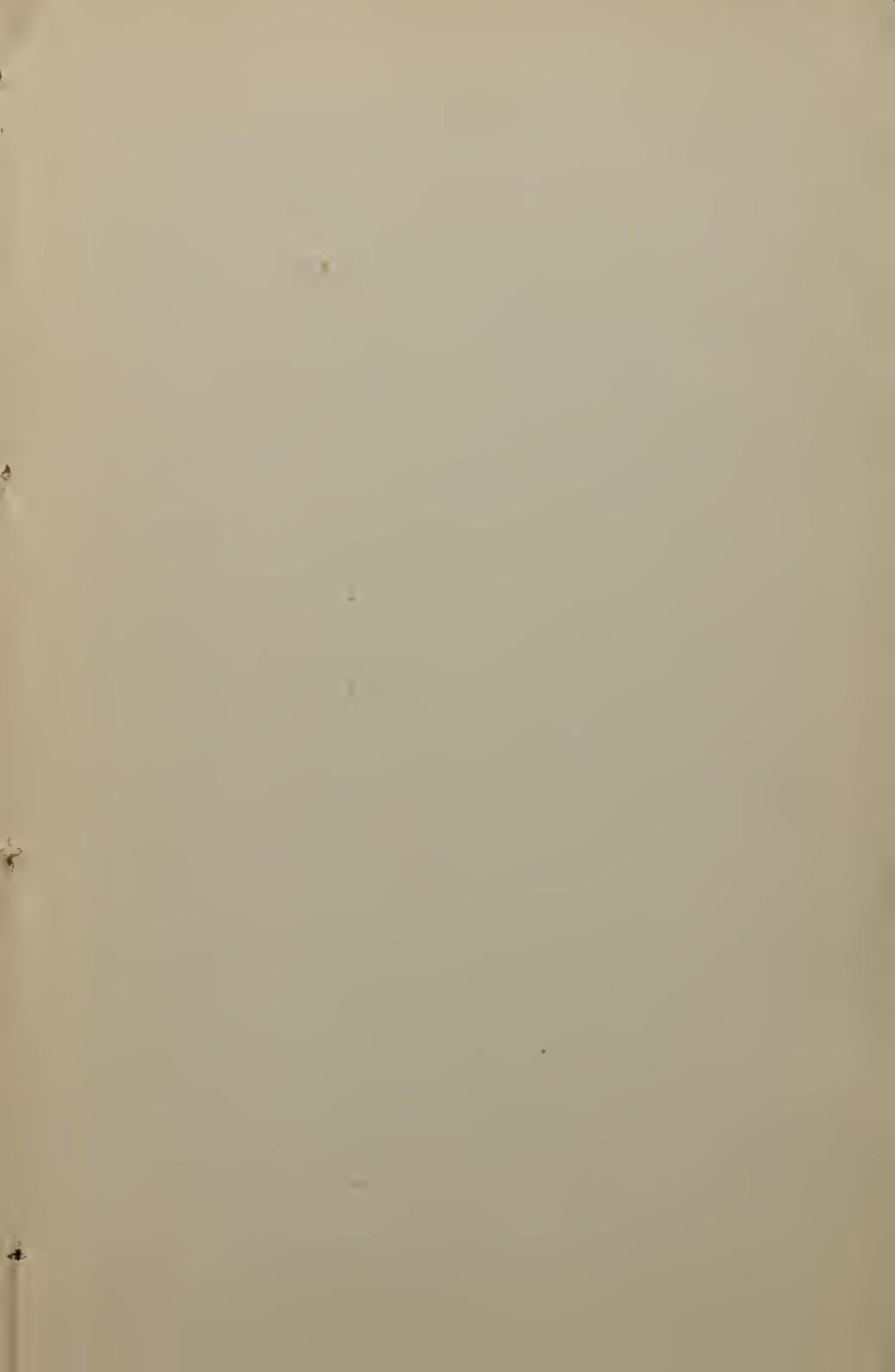


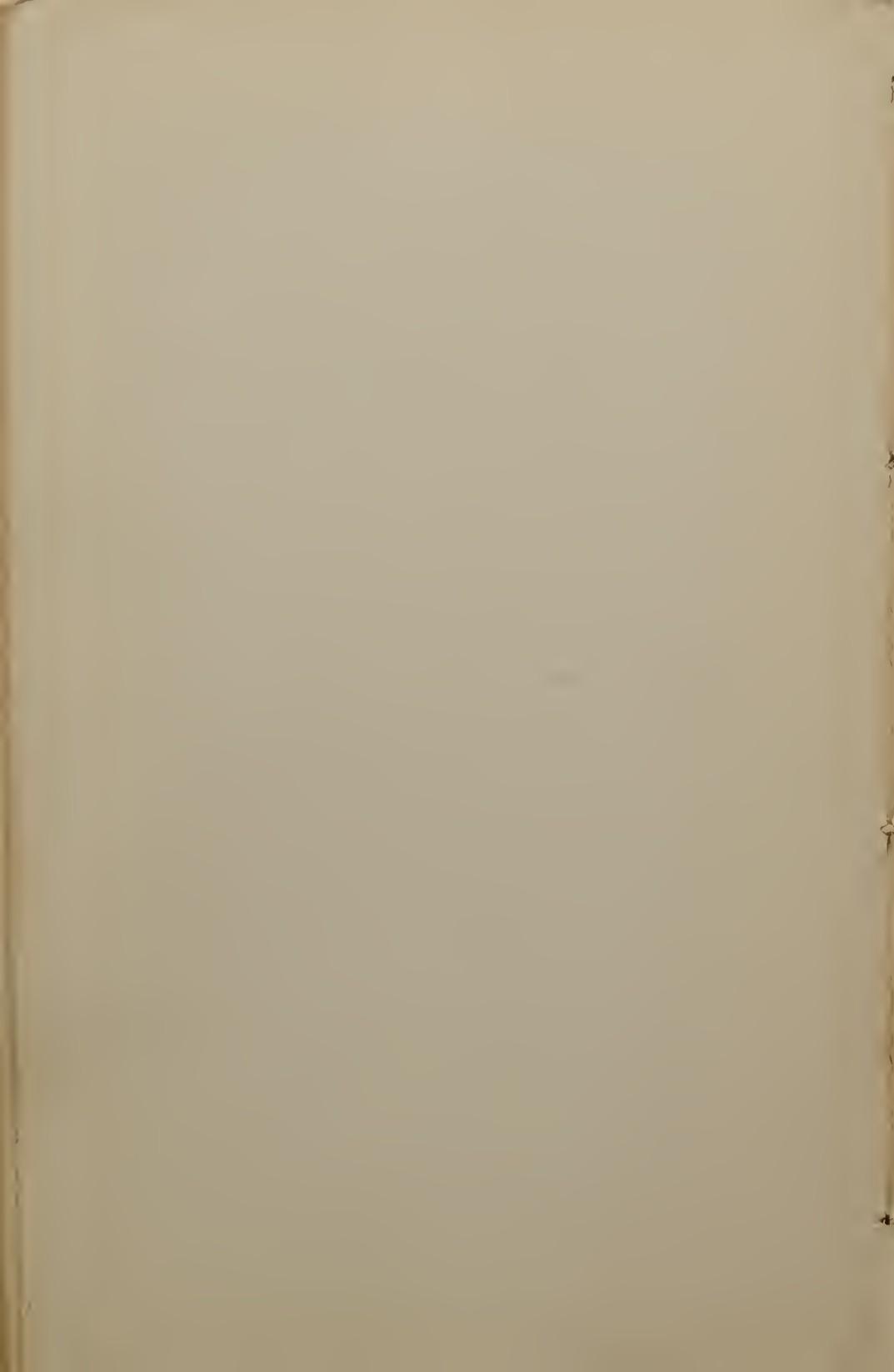


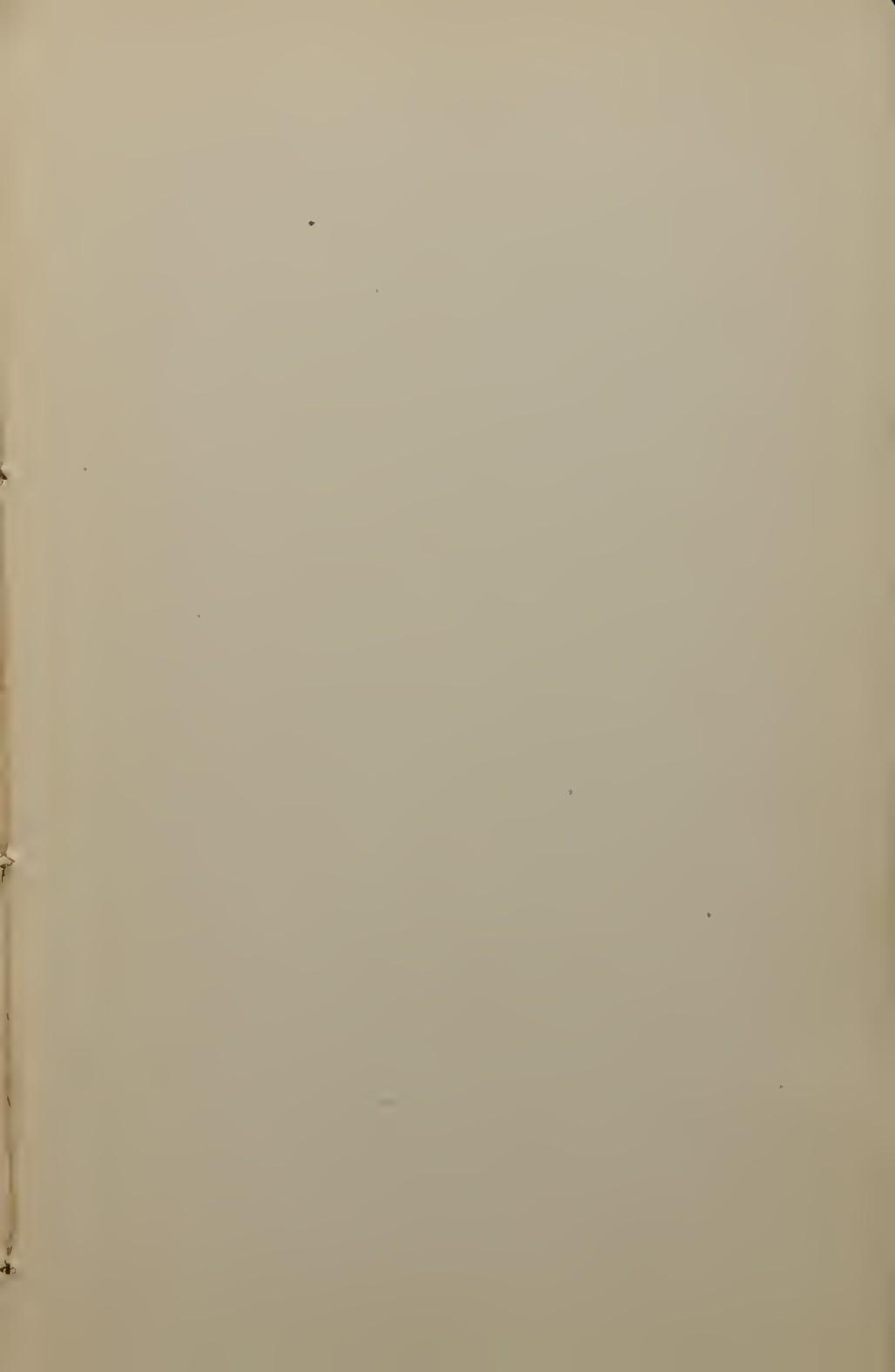


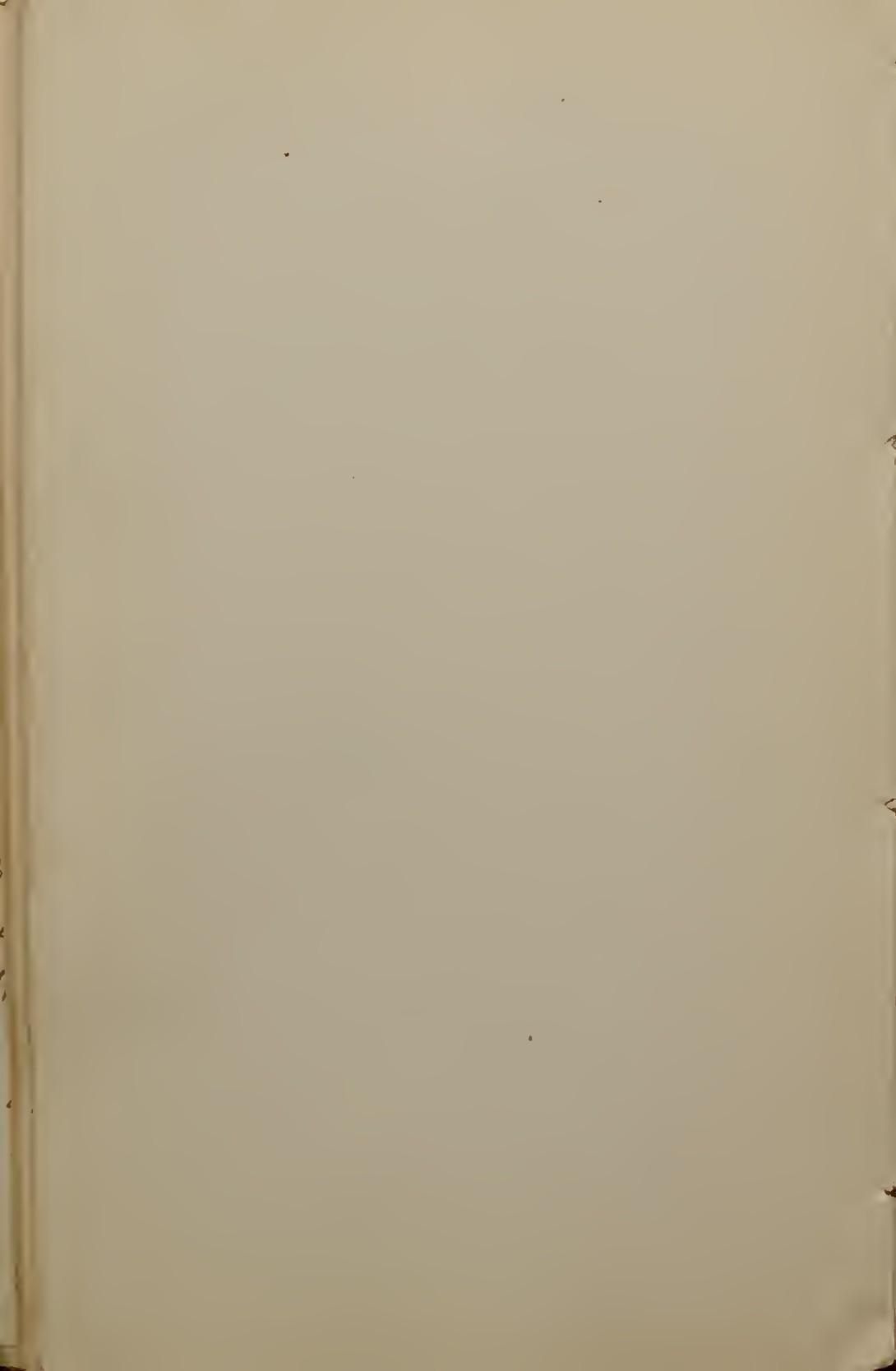


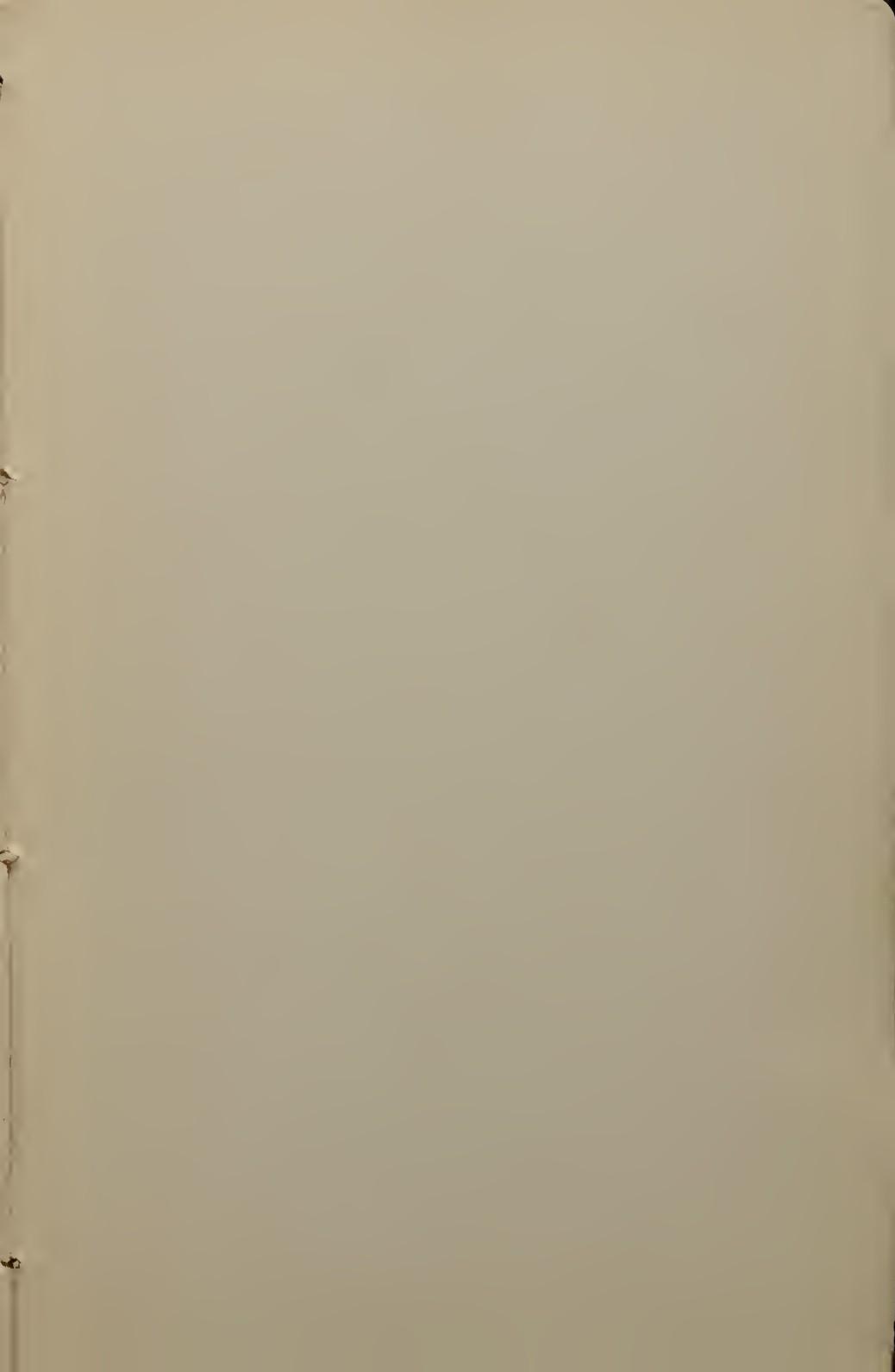


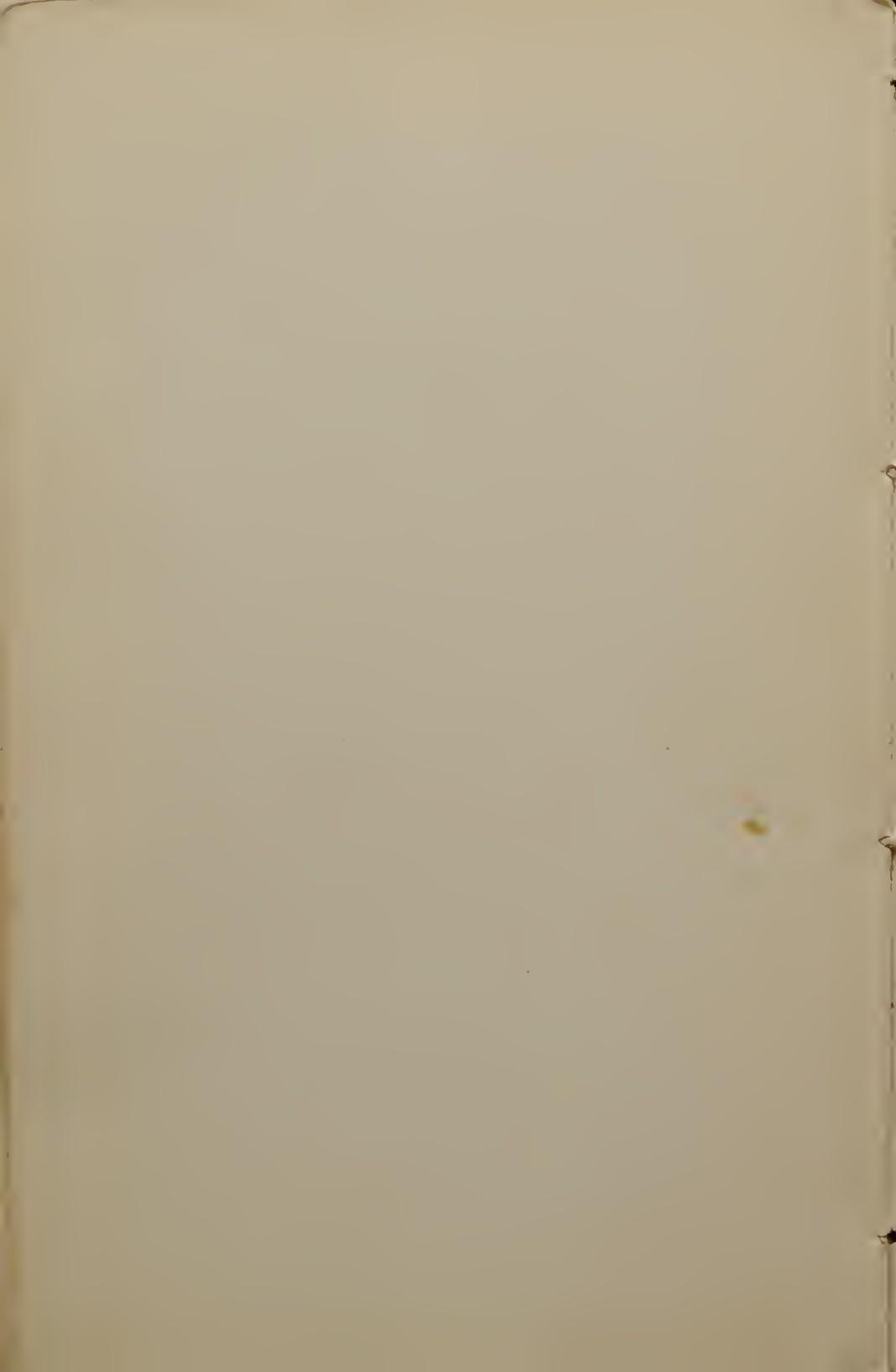












*Passalus cornutus*. 2 Larvae  
found in decayed log at Wal-  
kingford Aug. 1883. A pupa  
under bark of a decayed  
white oak, in cocoon made  
of debris of the decayed barks  
and wood, semi-oval in shape,  
scarcely 2 in by 1 inch, thick-  
ness of wall about  $\frac{1}{4}$  inch.

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*Lumelius* in decaying logs. June 9, 1884

Brown bands indent at ant. exp. &  
narrowing apparently at the girdle; afterwards  
wider. Bands become conspicuous  
indeed in elongating of the worm, especi-  
ally the front part where front is  
projected. Tapering in advance of  
girdle & acute at head. Worm  
gradually tapers behind & bluntly  
rounded at tail end. First row  
of spines included in brown bands,  
which shortly after fade out beneath.  
Girdle redder than elsewhere but dorsal band  
less distinctly marked in it.

# Gregarina in Phakangopsis.

Swarthmore Aug. 30, 1883. In intestine of a female, a large number perhaps a hundred congregated in a mass all in conjugation, the couples ranging from 0.18 to 0.3 mm long. In addition there were two encysted 0.20 diameter.

# Gregarines in larva of Liriomyza Dama?

Sep. 12, 83. Swarthmore. Body cylindrical rounded truncate behind. Three small individuals and a pair in conjugation also two encysted.

# Podura. Found under bark, Swarthmore Ap. 22, 85.

Belgian Scales Largest 0.09 long 0.072 broad  
Small one, 0.045 long 0.036 broad  
" " 0.036 long 0.018 broad

Podura 3.5 mm long with a pair of spines beneath. Body pale yellowish brown with lead colored scales.



Aug. 30, 83. Swarthmore. Caterpillar on the  
Hickory. Scarcely half an inch long; with  
4 short rows of conical orange colored horns:  
the shorter now lateral just above the  
margin; the longer now divergent on  
each side of the back. 10 to the lower  
marginal row including one at head and  
tail end, the first and third longest, the  
others short & nearly uniform. 5 to the upper  
row, excluding the one at head & tail  
which are nearly in the same line &  
included in the count of the former row.  
The 3 intermediate horns longest & uniform  
about 1 $\frac{1}{2}$  lines long. A dark purple  
nearly black band along the back  
and on each side, marked each by  
three longitudinal lines of white. A similar  
narrow band with one line of white  
between the lower row of horns and the  
inferior surface which is bordered with  
orange. In the white line of the lower  
dark band are the spiracles. Under  
surface translucent hornish. Head  
incapacious, concealed. Horns armed with  
fine yellow stinging hairs?

*Attacus Luna (Actias)*

Luna Moth. Pale green with central eye-like spots to wings. Long appendages to hindwing.

Caterpillar lives on Walnut & Hickory. Full grown in August. Pale bluish green with yellow stripe on each side & crossed with rings of same. Wants pearl colored twigs with red. Cocoon oval wrapped in leaves, which fall in autumn.

## Polyphemus Moth.

Attacus Polyphemus (Zelea).

Dull ochre yellow, with transparent eye-like spots to wings. In hindwings adjoining the eye-like spot a blue one shading into black. Expands 5 or 6 in.

Caterpillar. Feeds on Oaks,  
sometimes Elm & Lime trees.

In August & September. Pale green  
with faintly wavy, tinted with  
orange or purple, an oblique  
white line at sides of wings; head  
& feet brown, tail bordered by a  
brown V-like line. Forms an  
oval cocoon covered with leaves,  
which fall off in the autumn.

Attacus Cecropia (Platysamia)

Cecropia Moth.

Larger than former. Color dusky  
brown with margins of wings clay color;  
near centre of each wing a uniform  
red spot with white centre & black  
edging. A ~~wavy~~ waving dull red band  
crossing wing. An eye-like spot near tip

of fore wing. Body & legs dull red with white bands.

Caterpillar on apple, cherry & plum & currant in July & August & September. Green, with coral red knobs in front and yellow ones behind & light blue ones at sides all bordered with black points.

Hangs large cocoon, in September attached along a twig



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### A. Prometheus (*Callirania*)

Prometheus Moth. Male deep smoky brown, Female light reddish brown. Wings crossed by a wavy reddish line. An cyclike black spot bordered with bluish white crescent near tip of fore wings.

Caterpillars come to full size by Sept. Pale bluish green; head, feet, & tail yellow. Warts deep blue, except upper two on 2 & 3<sup>rd</sup> rings which are coral red. A yellow one on 11<sup>th</sup> ring. Cocoon fasted to twig Harris says on Sassafras, wild cherry Azalea & Cephalanthus.

Hickory-horn-worm.

Regal walnut-moth.

*Ceratomia regalis*.

Caterpillar commonly noticed  
feeding on the Walnut.

Adult green, about 4 in. long.

banded with pale blue, head & legs  
orange; anterior larger horns orange,  
the others black, all with minute  
black spines.

Pupa formed under ground.

Imago appears in June.

Fore wings blue veined with red &  
with yellow spots. Hindwings orange  
with yellow patches. Body orange  
except thorax which is yellow, limbs  
red. Antennae feather like.  
Also feeds on Hickory.

*Dryocampa imperialis*.

The Imperial moth. Wings yellow with dots & patches of purple brown, & crossed by band of same. Body yellow with purple brown. Appears in June. Lays eggs on Butterwood.

Caterpillar in August & September 3 or 4 inches, green tinged with red, sometimes brown. Covered with scattered hairs. Head & legs orange. Horny knobs yellow covered with black prickles.

Chrysalis dark brown. Formed in ground.

*Papilio Turnus.*

Larva feeds on Apple & Wild Cherry.

*Celias Philodice*

Yellow Butterfly of the roadsides &c.

Larva feeds on Clover &c.

*Trombiculium*

From Fort Concho, Texas.

Body oblong; sides parallel, in front truncate, behind rounded. Velvety red haired, with white spots; these especially at the sides and behind underneath also at ~~ends~~ of joints of feet & beneath the joints. Length 4 lines. Smaller ones associated uniformly red; with body concolor in entire, wider in front, with more or less lateral distinction in interval of the two posterior pairs of lines. A third variety nearly like the second, but less brilliant red & not contrasted laterally.

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*Polydesmus virginicus.*

Head black. Dorsal plates black merging behind into a narrow line of orange merging into a wider margin of yellow, and with the lateral tips orange. Ventral segments with thin margins behind laterally with orange. Legs yellow. Antennae pale pink.

$$\begin{array}{r} 025 \\ 25 \\ \hline 125 \\ 50 \\ \hline 625 \end{array}$$

